

APPENDIX A  
PARK PROFILES

## **Carolina Beach State Park**

### **Summary**

With a marina providing access to some of North Carolina's best fishing spots, a secluded camping area beneath towering trees, and miles of hiking trails that traverse a variety of distinct habitats--not to mention the presence of the Venus flytrap, one of the world's most unique carnivorous plants--it's no wonder Carolina Beach State Park is a popular coastal attraction. Located in an area steeped in both history and natural diversity, the park includes a visitor's center with exhibits depicting the wonders of its environment. Visit Carolina Beach State Park to relax, enjoy nature or embark on an eye-opening adventure.

### **Interpretive Themes**

#### **CARNIVOROUS PLANTS**

This theme focuses on the Venus flytrap and other carnivorous plants in the park. It especially focuses on their habitat, management needs and their unique adaptations.

#### **DIVERSE PLANT COMMUNITIES**

This theme focuses on the eight distinctive community types, the geologic and coastal history which create these environments, the individual plant adaptations to these communities, the uniqueness of so many plant communities in a very small area and management needs of some of these communities, such as prescribed burning.

**Acreeage:** 420 land acres    **Visitation (2014):** 567,025    **County:** New Hanover

### **Visitor Facilities**

1 Auditorium  
3 Boat Dock  
1 Boat Ramp  
83 Campsite - No Hookups  
1 Classroom  
2 Dump Station  
1 Fishing Pier  
1 Group Camp - Walk In  
2 Group Campsite - Walk In  
1 Museum/Exhibit Hall  
1 Office  
11 Parking Area - Public  
1 Picnic Area  
2 Showerhouse  
2 Tent and Trailer Camp  
1 Toilet Building  
2 Toilet Building - Non-Flush

1 Visitor Center  
Park has > 5 mi of Hiking Trails

#### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1  
Processing Assistant - 1

#### **Seasonal Staff**

Refreshment Stand/bathhouse Fee Collector - 5  
General Utility Worker - 5  
Park Attendant/fee Collector - 2  
Office Assistant - 1  
Park Technician/fee Collector - 1

## **Carvers Creek State Park**

### **Summary**

The summary information for this park has not yet been entered.

### **Interpretive Themes**

ENVIRONMENTAL RESTORATION  
CULTURAL HISTORY OF THE REGION  
THE LONGLEAF PINE ECOSYSTEM

**Acreage:** 4,332 land acres    **Visitation (2014):** 74,220    **County:** Cumberland & Harnett Counties

### **Visitor Facilities**

1 Boathouse  
1 Historic - House  
40 Historic Building  
1 Park Office  
2 Parking Area - Public

Park Ranger - 2  
Office Assistant - 1

### **Seasonal Staff**

General Utility Worker - 2  
Office Assistant - 1  
Park Attendant/fee Collector - 1  
Park Technician/fee Collector - 1  
Natural Resource Technician - 1

### **Permanent Staff**

Park Superintendent - 1  
Maintenance Mechanic - 2

## **Chimney Rock State Park**

### **Summary**

In 2005, the N.C. General Assembly authorized a new state park in the scenic Hickory Nut Gorge area of western Rutherford and surrounding counties. The unit was designated as Chimney Rock State Park shortly after the state had acquired Chimney Rock Park, a private nature park surrounding the striking 315-foot spire on the gorge's southern side. In 1902, Lucius B. Morse bought the site. The Morse family developed park facilities including a tunnel and elevator to the rock summit, a visitor center, nature center and a network of hiking trails to geologic points of interest and the 404-foot-tall Hickory Nut Falls.

The greater Chimney Rock State Park currently encompasses roughly 5,900 acres on both north and south sides of the gorge and expansion efforts continue to bring more of the gorge's rich natural resources into conservation.

The primary sections of the park are Chimney Rock, World's Edge, and Rumbling Bald. The addition of these lands to the State Parks System brings a large cluster of state and nationally significant sites, centered on the spectacular cliffs, rugged mountains, and unusually rich soils that line the gorge. With 36 rare plant species and 14 rare animal species, it is one of the major centers of biodiversity in the state.

### **Interpretive Themes**

#### **LIVING ON THE EDGE**

The Rocky Broad River has cut through the mountainous terrain to create the 14-mile gorge. This has created distinct geological features and a diversity of natural community types including low elevation rocky summit and low elevation granitic dome. These areas are often too steep or rocky to support a closed forest canopy and many rare plant and animal species have adapted to such harsh environmental conditions. The area's highest peaks and steep slopes host bird species relatively uncommon to the region. Peregrine falcon and ravens prefer these rocky exposed cliffs to lay their eggs. Rocky outcrops facing north also support unique plant species such as roundleaf serviceberry, Biltmore sedge, and eastern shooting star. Life on these outcrops and cliff faces has teetered on the edge for many of these rare species, but with the continued protection of these incredible places they should be able to hang on.

#### **GEOLOGIC FORCES BEHIND THE STUNNING SCENERY OF HICKORY NUT GORGE**

The magnificent cliffs at Chimney Rock State Park tell the story of nearly 500 million years of geologic forces. These unhurried forces include ancient volcanic activity, heat and pressure miles beneath the earth's surface, plate tectonics and erosion. The area is still seismically active with a magnitude 3.1 earthquake 8 miles south of Lake Lure in 2007 and historical earthquake reports in the late 1800's giving Rumbling Bald its name. The Rocky Broad River carves a path 1,800 feet deep through the gorge, ending in man-made Lake Lure. On either side of the river, steep exposed cliffs underscore vegetated ridge tops, demonstrating two distinctly different types of bedrock. The forces of expanding ice between cracks in the cliffs and gravity cause large pieces of cliff to break off. These ongoing rockslides result in remarkable landforms including Chimney Rock, numerous caves and tunnels, and jagged cliff faces.

**Acreage:** 6,270 land acres    **Visitation (2014):** 249,548    **Counties:** Rutherford, Henderson, Buncombe, Polk

**Visitor Facilities**

1 Concession  
1 Elevator  
2 Environmental Education Center  
1 Interpretive Building  
1 Lodge  
1 Museum/Exhibit Hall  
1 Office  
1 Park Office  
8 Parking Area - Public  
5 Parking Area - Public Unpaved  
1 Picnic Shelter  
2 Restaurant  
3 Toilet Building  
1 Visitor Center

**Permanent Staff**

Park Superintendent - 1  
Maintenance Mechanic - 1  
Park Ranger - 4  
Maintenance Mechanic II - 1  
Office Assistant - 1

**Seasonal Staff**

Park Technician/fee Collector - 2  
Park Attendant/fee Collector - 2  
General Utility Worker - 1

## **Cliffs of the Neuse State Park**

### **Summary**

Cliffs of the Neuse State Park presently features a 35-site family campground (dump station for R.V. users/no electricity) and a four-site group campground (restrooms/no showers/shared water) for groups. The park's primary attraction during the summer season is its 11-acre swim lake and concessions that are open daily Memorial Day-Labor Day for swimming and water activities (lifeguards on duty during season). The park is presently about 1,100 acres in size and borders the Neuse River for about two miles. Fishing is permitted in the river and anglers have good access at the base of the 350-yard Trail to target rockfish, shad, largemouth bass, bream or catfish depending upon the season. The Visitor Center features natural and cultural displays and offers a 1,000 sq. ft. auditorium that is available for public and private organization use by fee. Also featured is the park's 1800 sq. ft. picnic shelter (adjacent to restrooms) which may be reserved by fee also. Those with disabilities are permitted to drive to the picnic shelter upon request. Weddings are permitted by reservation on the Swim Lake beach from Sept. 10-May 10.

### **Interpretive Themes**

CLIFFS OF THE NEUSE STATE PARK FEATURES TWO DISTINCT FOREST TYPES; BOTTOMLAND AND BALD CYPRESS

The main geologic feature of the park is the multi-layered cliffs along the banks of the Neuse River just west of Seven Springs. The steep, colorful cliffs are not only an important scenic resource; they are also a valuable educational resource that provides visitors with a view back through time. Most of the exposed cliff layers belong to the Black Creek Formation, which was deposited during the late Cretaceous period more than 66 million years ago. Park programs and museum exhibits demonstrate the geologic processes that formed the cliffs and how geologists and paleontologists observe landforms and fossils to create a picture of the geography, climate and LIFE FORMS OF THE CRETACEOUS PERIOD.

Currently, the park features at least four different types of aquatic habitat: the Neuse River and its floodplain; two small creeks; one man-made lake, and a wetland bog area that was formerly known as Hickory Hill pond. These different habitats represent a valuable educational resource for school groups and others to study water quality and related environmental issues. The water quality issues within the Neuse River basin have been WIDELY REPORTED AND ARE OF INTEREST TO MANY PARK VISITORS.

**Acreage:** 892 land acres    **Visitation (2014):** 177,224    **County:** Wayne

### **Visitor Facilities**

1 Amphitheater	1 Park Office
1 Bathhouse	7 Parking Area - Public
1 Beach	2 Parking Area - Public Unpaved
1 Boathouse	1 Picnic Area
34 Campsite - No Hookups	1 Picnic Shelter
1 Campsite - Water & Electric	1 Showerhouse
1 Dump Station	1 Swimming Area - Freshwater
1 Group Camp - Drive To	1 Tent and Trailer Camp
4 Group Campsite - Drive To	2 Toilet Building
1 Museum/Exhibit Hall	1 Toilet Building - Non-Flush

1 Visitor Center

**Permanent Staff**

Park Superintendent - 1

Park Ranger - 3

Maintenance Mechanic - 3

Office Assistant - 1

**Seasonal Staff**

Park Attendant/fee Collector - 6

Lifeguard - 5

Refreshment Stand/bathhouse Fee Collector - 5

General Utility Worker - 5

Office Assistant - 2

Chief Lifeguard - 1

Natural Resource Technician - 1

## **Crowders Mountain State Park**

### **Summary**

Raptors soar gracefully in the wind; vegetation reaches to the sky; sheer vertical cliffs drop 150 feet. Enjoy the spectacle from a front-row seat. High atop Crowders Mountain, the second highest point in Gaston County, views stretch for more than 25 miles. For a closer view of nature's marvels, walk the park's many miles of trails. The gently rolling landscape of the North Carolina Piedmont offers a variety of terrain. Dip into the valleys; cross the foothills; climb to the peaks. Quiet woods, trickling streams and melodious birds await. These spectacular surroundings, like the unique habitats in many other state parks, would not exist were it not for the efforts of concerned citizens dedicated to protecting our environment.

### **Interpretive Themes**

#### **THE MONADNOCKS OF CROWDERS MOUNTAIN AND THE PINNACLE**

The highest two peaks of the Kings Mountain range monadnocks, isolated hills that have resisted erosion. These peaks have many exposed rock outcrops and vertical cliffs as well as diversity of rock types. The park came into existence due to public support to save these monadnocks from the fate of nearby Henry's Knob, which was mined down from a peak to an open pit. The formation and erosion of the Kings Mountain range and the role of the park in protecting these unique kyanite-quartzite monadnocks are the focus of this theme.

#### **STREAM AND LAKE ECOLOGY**

This theme focuses on the diversity of plant and animal life found in and around the water. It also concerns the area's water quality and health of the ecosystem.

#### **DIVERSE PLANT COMMUNITIES**

At the various elevations and slopes along Crowders Mountain, a diverse array of plant communities is found. The plant communities are related to the soils, rocks and exposures. The importance of the park in protecting these communities is also a part of this theme.

**Acreage:** 5,126 land acres    **Visitation (2014):** 577,666    **Counties:** Gaston, Cleveland

### **Visitor Facilities**

1 Amphitheater  
1 Auditorium  
1 Backcountry Campground  
1 Campsite - No Hookups  
1 Fishing Pier  
1 Group Camp - Hike In  
9 Group Campsite - Hike In  
1 Museum/Exhibit Hall  
1 Park Office  
11 Parking Area - Public  
2 Parking Area - Public Unpaved  
2 Picnic Shelter  
10 Primitive Campsite - Hike In  
8 Toilet Building

3 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails

### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 6  
Office Assistant - 1  
Maintenance Mechanic - 4

### **Seasonal Staff**

General Utility Worker - 3  
Office Assistant - 3  
Park Attendant/fee Collector - 2



## **Dismal Swamp State Park**

### **Summary**

Feel your daily stresses melt away as you cross the historic Dismal Swamp Canal and walk along the 2000-foot boardwalk into this geological wonder. Experience firsthand the lush swamp forest and get up-close and personal with the wide variety of wildlife. For the adventurer, there are 18 miles of hiking and mountain biking trails. Or, enjoy a leisurely paddle down the Dismal Swamp Canal in your canoe or kayak.

Learn why George Washington called the Dismal Swamp "a glorious paradise", how the swamp was important in the Underground Railroad and the ecological importance of wetlands in the visitor center and exhibit hall. All of this and more can be found just 3 miles south of the NC/VA border on US Hwy 17.

### **Interpretive Themes**

#### **FORMATION OF THE GREAT DISMAL SWAMP**

The basic hydrologic requirements for the formation and development of large peat swamps are a humid climate with reasonable uniform rainfall throughout the year, and restricted drainage, both surface and subsurface. The thick, rather impervious clay which underlies the area is an effective seal, preventing either downward or upward movement of water. These unique wetland conditions offer habitat to many distinct plant communities, black bears and over 150 species of birds.

#### **THE HISTORY OF HUMAN ACTIVITY IN THE SWAMP**

The commercial and agricultural values of the swamp were explored soon after it was discovered by Colonists, including draining the whole area by ditching. The first canal, now called the Washington Ditch, was probably dug in the late 1760's to facilitate the harvesting and removal of the timber. During the mid-1800's, hundreds of shingle flatboats, picturesque passenger ships and freighters plied its length. This had a great effect on the Dismal Swamp as more and more timber was cut and shipped out via the canal and the numerous ditches cut for this purpose.

#### **RESTORATION OF NATURAL PROCESSES IN THE SWAMP**

When the swamp was drained, the drier conditions allowed species such as maple and sweet gums to replace the Atlantic white cedar and cypress. Fire suppression also appears to be detrimental to cedar and cypress. A natural-resource management objective of the park is to help restore these natural forces. Water control structures are being placed in some of the ditches to help restore the area's natural hydrology. A prescribed burn program will benefit the area's native species.

**Acreage:** 14,432 land acres    **Visitation (2014):** 125,026    **County:** Camden

### **Visitor Facilities**

1 Auditorium  
1 Canoe Launch Point  
1 Classroom  
1 Museum/Exhibit Hall  
1 Observation Structure  
3 Parking Area - Public  
1 Parking Area - Trailer  
1 Visitor Center

### **Permanent Staff**

Park Superintendent - 1  
Maintenance Mechanic - 2  
Park Ranger - 2  
Office Assistant - 1

### **Seasonal Staff**

General Utility Worker - 4

## **Elk Knob State Park**

### **Summary**

The park is centered on a series of high ridges and peaks, featuring spectacular scenery and high quality examples of Northern Hardwood Forest and High Elevation Red Oak Forest natural communities. As in the rest of the Amphibolite Mountains area, much of the area is composed of amphibolite, a rock type that produces unusually rich, non-acidic soils with associated rich hardwood forest communities.

Elk Knob State Park is one of the newest additions to the North Carolina state parks system. Currently, it is in an interim development stage with a park office/contact station, a maintenance facility, picnic area, parking areas, a 1.9 mile trail to the summit of Elk Knob, and backcountry camping areas.

### **Interpretive Themes**

The interpretive themes for this park have not yet been entered.

**Acreage:** 3,672 land acres    **Visitation (2014):** 30,060    **Counties:** Watauga, Ashe

### **Visitor Facilities**

- 1 Classroom
- 1 Park Office
- 1 Parking Area - Public
- 1 Parking Area - Public Unpaved
- 1 Picnic Area
- 1 Toilet Building

### **Permanent Staff**

- Park Superintendent - 1
- Park Ranger - 2
- Office Assistant IV - 1
- Maintenance Mechanic - 1

### **Seasonal Staff**

- General Utility Worker - 4
- Office Assistant - 2

## **Eno River State Park**

### **Summary**

Minutes from Durham, Hillsborough, and Chapel Hill the Eno River State Park offers secluded wilderness trails with the serenity of a clear river drifting and cascading over a rocky stream bed. The Eno River is a swift, shallow stream flowing from northwest Orange County into Durham County for 33 miles where it joins the Flat River to become the Neuse and flows into Falls Lake. Its waters roll through wilderness, passing historic mill sites, river bluffs covered with flowering shrubs, and fords used by early settlers.

Rains can turn the river into a raging torrent, yet it quickly settles into a gentle current. It is a chain of rapids, pools, and riffles meandering through forest on a bed of rock.

The valley of the river is narrow and steep walled. The rugged landscape is carved and sculpted by swift flowing water. Eno River State Park lies here, in the beauty of almost 4,200 acres of natural resources. Five accesses -- Cabe Lands, Cole Mill, Few's Ford, Pleasant Green, and Pump Station -- offer entry into this largely unspoiled river environment.

### **Interpretive Themes**

#### **RIVER BASIN ECOLOGY**

As the park's primary natural feature, the Eno River provides the greatest resource for park staff to present interpretation and environmental education to the visiting public. The Eno River watershed is part of the Neuse River Basin, one of the most heavily populated river basins in North Carolina. As the populations in Durham and Orange counties continue to grow, humans affect water quality, water quantity, and aquatic life from the headwaters of the Eno River in Orange County all the way to the estuaries of the Pamlico Sound. Interpretive programs focus on aquatic life and the importance of the interrelationships between flora, fauna, and humans to the health of the river ecosystem.

#### **CULTURAL HISTORY**

The Eno River Valley has a rich human history, beginning with numerous Native American tribes that first settled the riverbanks to the more recent developments that threaten the river ecosystem. Programs emphasize the settlement of the area from the 1750s to the early 1900s, while highlighting the milling community. Mill sites, home sites, cemeteries, roads, fords, and signs of agriculture remain for park staff to interpret. Park staff tell the unique story of the park's creation, sharing how the Eno River Association formed to protect the river valley from development and how the Association continues to support the park through land acquisition and preservation.

#### **WILDLIFE HABITAT CONSERVATION**

The single greatest threat to habitats of the Eno River Valley is development. As Orange and Durham counties continue to grow, land acquisition and management are critical. The park provides crucial habitat -- food, water, shelter, and space -- for aquatic and terrestrial wildlife by conserving riparian forests and mature upland forests. Park programming covers the identification of habitats and their importance to the health of wildlife populations.

#### **GEOLOGIC FEATURES**

The metavolcanic rock lying under the water's surface and scattered about the valley tells the story of the Eno River's formation. Occoneechee Mountain State Natural Area includes the highest point in Orange County at 867 feet and numerous rock outcrops demonstrating evidence of ancient volcanic

activity. The recent publication by the North Carolina Geologic Survey, A Geologic Adventure along the Eno River, interprets the many geologic features found along the park's trails and is an invaluable resource for park staff and the public.

**Acreage:** 4,197 land acres    **Visitation (2014):** 462,549    **Counties:** Durham, Orange

**Visitor Facilities**

1 Cabin - Group  
3 Canoe Launch Point  
2 Group Camp - Walk In  
2 Group Campsite - Walk In  
4 Historic - House  
1 Historic Area  
2 Historic Building  
1 Park Office  
9 Parking Area - Public  
2 Parking Area - Public Unpaved  
1 Parking Area - Trailer Unpaved  
2 Picnic Area  
2 Picnic Shelter  
2 Primitive Camp - Walk In  
15 Primitive Campsite - Walk In  
1 Shelter  
6 Toilet Building - Non-Flush  
Park has > 5 mi of Hiking Trails  
1 Toilet Building  
1 Shelter

**Permanent Staff**

Park Ranger - 4  
Park Superintendent - 1  
Office Assistant - 1  
Maintenance Mechanic - 2

**Seasonal Staff**

General Utility Worker - 10  
Park Technician/fee Collector - 3  
Office Assistant - 2  
Park Attendant/fee Collector - 2  
Naturalist - pt - 1  
Natural Resource Technician - 1

## **Fort Macon State Park**

### **Summary**

Fort Macon offers public access to the surf, sun and sand of the Crystal Coast - as well as a historic landmark. Located at the eastern end of Bogue Banks, one of a series of barrier islands along the North Carolina coast, the park is surrounded on three sides by water - the Atlantic Ocean, Beaufort Inlet and Bogue Sound. This area of undisturbed natural beauty is the perfect place to explore salt marshes and estuaries vital to the coastal ecosystem.

The park is also home to a Civil War fort with a history as intricate and unique as the waterways of the sound. Visit Fort Macon to enjoy the land's natural beauty and soak up some history.

### **Interpretive Themes**

#### **THE FORT**

Construction of Fort Macon began in 1826 and the fort was garrisoned in 1834. At the start of the Civil War, North Carolina seized the fort from Union forces, but it was later recaptured in 1862 during the only major battle involving Fort Macon. After the Civil War, the fort was a federal prison, then garrisoned again during the Spanish-American War. In 1924, Fort Macon became North Carolina's second state park. The Civilian Conservation Corps restored the fort in 1934-35 and it was garrisoned for a final time during World War II. Interpretation and education programming highlights living conditions at the fort, different uses of the fort throughout history, the fort's architecture and its military history.

#### **BARRIER ISLAND DYNAMICS**

The geologic evolution of barrier islands is the second primary theme. Major concepts in this theme area include: theories of barrier island formation and migration over time, dune movement and erosion, natural communities adapted to specific barrier island habitats, and human impacts on barrier island dynamics. The Environmental Education Learning Experience (EELE) for the park focuses on barrier islands with activities for the middle grades.

**Acreeage:** 424 land acres    **Visitation (2014):** 1,190,134    **County:** Carteret

### **Visitor Facilities**

- 1 Auditorium
- 1 Bathhouse
- 1 Classroom
- 1 Concession
- 1 Fort
- 2 Museum/Exhibit Hall
- 1 Park Office
- 8 Parking Area - Public
- 1 Picnic Area
- 11 Picnic Shelter
- 2 Shelter
- 1 Swimming Area - Ocean or Sound
- 1 Visitor Center

### **Permanent Staff**

- Park Superintendent - 1
- Park Ranger - 4
- Maintenance Mechanic - 4
- Office Assistant - 1

### **Seasonal Staff**

- Park Attendant/fee Collector - 6
- Lifeguard - 6
- Refreshment Stand/bathhouse Fee Collector - 5
- General Utility Worker - 5
- Chief Lifeguard - 1
- Refreshment Stand/bathhouse Manager - 1

## Goose Creek State Park

### Summary

Giant, old oaks draped in Spanish moss welcome you to this special world where broad, lazy Goose Creek joins the Pamlico River. A primitive camping area, picnic sites, swim beach and hiking and paddling trails offer a variety of ways to savor the tranquil surroundings at Goose Creek State Park. Goose Creek is conveniently located between historic Bath and the original Washington.

Visit Goose Creek State Park. Unwind and soak up the peacefulness; a hectic pace is not permitted.

### Interpretive Themes

#### WETLANDS

Wetlands are one of coastal North Carolina's most valuable habitat types. This interpretive theme focuses on the diversity of wetland types and how they evolve; the hydrology and nutrient cycling within wetlands; plant and animal habitats and how the habitats and animal users change through the seasons; the importance of wetlands to people, especially in water quality and flood and erosion control; and the uniqueness of the combination of freshwater and salt water wetlands in the park.

#### DIVERSITY OF HABITATS

This interpretive theme focuses on the large number of community types and successional stages exhibited in the park. It also focuses on the wide array of niches available in such a small area due to the diversity of habitats.

**Acreeage:** 1,672 land acres    **Visitation (2014):** 255,107    **County:** Beaufort

### Visitor Facilities

1 Auditorium  
1 Beach  
1 Boat Dock  
1 Boat Ramp  
1 Classroom  
1 Fishing Pier  
1 Group Camp - Drive To  
1 Group Campsite - Drive To  
1 Information Station  
1 Interpretive Building  
1 Laboratory  
1 Meeting Room  
1 Museum/Exhibit Hall  
1 Observation Structure  
12 Parking Area - Public  
2 Parking Area - Public Unpaved  
1 Picnic Area  
2 Picnic Shelter  
12 Primitive Campsite - Drive To  
1 Restroom

1 Swimming Area - Ocean or Sound  
1 Tent and Trailer Camp  
2 Toilet Building  
3 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Paddle Trails  
Park has Interpretive Trails

#### Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1  
Environmental Specialist - 1

#### Seasonal Staff

General Utility Worker - 5  
Park Attendant/fee Collector - 4  
Park Technician/fee Collector - 1

## **Gorges State Park**

### **Summary**

Plunging waterfalls, rugged river gorges, sheer rock walls and one of the greatest concentrations of rare and unique species in the eastern United States are found within Gorges State Park. An elevation that rises 2,000 feet in only four miles, combined with rainfall in excess of 80 inches per year, creates a temperate rain forest and supports a collection of waterfalls.

On April 29, 1999, thanks to a unique partnership of industry, the environmental community and the state of North Carolina, 10,000 acres of the Jocassee Gorges in Transylvania County were placed in public ownership to be preserved for future generations of North Carolinians. The property was purchased by the state from Duke Energy Corporation, and the transaction created a 2,900-acre game land managed by the N.C. Wildlife Resources Commission. Currently, Gorges encompasses nearly 7,500 acres and is the only state park west of Asheville.

### **Interpretive Themes**

#### **THE STEEP TERRAIN OF THE BLUE RIDGE ESCARPMENT**

Gorges State Park lies within the Blue Ridge Escarpment, a wide strip of steep, highly dissected land that drops sharply from the eastern edge of the Blue Ridge Mountains to the adjoining Piedmont lowlands. In the park, the escarpment falls from its highest elevation of 3,200 feet to its lowest elevation of 1,200 feet in a distance of only four miles! The park is an ideal place to study geology. The escarpment includes many striking landforms such as large overhangs, cliffs, pavement outcrops, cascades and waterfalls.

#### **WET CLIMATE AND ABUNDANT SURFACE WATERS**

The park is a very wet place, receiving an average of 80 to 90 inches of rainfall each year. These rains supply the abundant surface waters, which are the main source of weathering and erosion in the park and throughout the Blue Ridge Escarpment. The escarpment has the highest concentration of waterfalls and spray cliffs in eastern North America. The wet gorges and spray cliffs host an amazing diversity of amphibians and tropical plants.

#### **NATURAL COMMUNITIES AND RARE SPECIES**

Because it is located in the transition zone between the Piedmont and mountains, the Blue Ridge Escarpment is a refuge for a diverse assortment of species and natural community types. The steep elevation gradient in the park creates differences in hydrology, soils and climate over very short distances, allowing for an ever-changing mosaic of natural communities. Unexpected combination of Piedmont and mountain species occur, and of the 114 natural community types found in North Carolina, 16 have been documented in the park. These community types range from high-elevation hardwood forests to low-elevation cove forests, and include communities associated with waterfalls and spray cliffs. The deep river gorges harbor an array of isolated species that are tropical in origin. As a result, biologists refer to the escarpment as "the tropics in the mountains".

**Acreage:** 7,709 land acres    **Visitation (2014):** 107,254    **County:** Transylvania

**Visitor Facilities**

1 Amphitheater  
1 Backcountry Campground  
2 Observation Structure  
8 Parking Area - Public  
2 Parking Area - Public Unpaved  
1 Picnic Area  
2 Picnic Shelter  
14 Primitive Campsite - Hike In  
3 Toilet Building  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Bicycle Trails  
Park has Equestrian Trails

**Permanent Staff**

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1

**Seasonal Staff**

General Utility Worker - 2  
Park Attendant/fee Collector - 2  
Naturalist\_pt - 2  
Office Assistant - 1



## **Grandfather Mountain State Park**

### **Summary**

In 2008, agreement was reached for the state parks system to acquire 2,456 acres of Grandfather Mountain to become North Carolina's newest state park. The property is commonly known as the backcountry of the famous travel destination. The acquisition was arranged with the help of the Conservation Fund and The Nature Conservancy, which holds conservation easements on the mountain covering nearly 4,000 acres. The acquisition was financed by the Parks and Recreation & Natural Heritage trust funds.

In early 2009, the General Assembly formally authorized Grandfather Mountain State Park. This gives the state parks system the option of seeking additional acreage for traditional park facilities. Any additional tracts or facilities would be identified and prescribed through a public master planning process.

Over 70 species of rare, threatened and endangered plants and animals reside on the mountain. From the lower streams up to the higher peaks, over a dozen distinct ecological zones stretch across the landscape. The park is known for some of the most challenging hiking trails in the Southeast. Nature lovers and hikers alike, find this a special place.

### **Interpretive Themes**

BIOSPHERE RESERVE

ECOLOGICAL TRANSITION ZONES

HEADWATERS OF WATAUGA AND LINVILLE RIVERS/WATER QUALITY

**Acreage:** 2,644 land acres    **Visitation (2014):** 72,926    **Counties:** Avery, Watauga, Caldwell

### **Visitor Facilities**

1 Office

1 Parking Area - Public

13 Primitive Campsite - Hike In

1 Shelter

Park Ranger - 2

Office Assistant - 1

### **Permanent Staff**

Park Superintendent - 1

Maintenance Mechanic - 1

### **Seasonal Staff**

General Utility Worker - 3

Office Assistant - 1

Park Technician/fee Collector - 1

## **Hammocks Beach State Park**

### **Summary**

Venture to Bear Island and reward yourself with vivid memories of one of the most unspoiled beaches on the Atlantic coast. Accessible only by passenger ferry or private boat, there's just one thing at Hammocks Beach that's crowded -- the list of things to do.

Stroll the beach with laughing gulls and sandpipers. Cast a baited hook into endless rows of foaming breakers. Discover tiny specimens of marine life in tidal pools and mudflats. Use a camera or paintbrush to capture the green and gold grasses that color the salt marshes. Spend the night among the sand dunes, or simply bask in the sun and do nothing at all.

Secluded and tranquil, free from intruding commercialism, Hammocks Beach may not be for everyone, but the island is a retreat for people who welcome the challenges of relentless sun, sand, sea and sky.

### **Interpretive Themes**

#### **LOGGERHEAD SEA TURTLE**

The loggerhead sea turtle is the focus of the Environmental Education Learning Experience (EELE) for the park, as well as the majority of interpretive programs given to the general public. Major concepts within this theme include the sea turtle's life history, migration routes, nesting requirements and behavior, reasons for endangerment, and park resource management efforts.

#### **BARRIER ISLAND ECOLOGY**

This theme relates the dynamic geology of a barrier island to the associated flora and fauna that must adapt to it. A cross-section of the island reveals different natural communities that have adapted to specific environmental conditions. Some examples of these communities include upper beach, dune grass, salt marsh, and maritime forest. The ways in which humans can affect barrier island ecology is an important concept within this theme.

#### **LOCAL CULTURAL HISTORY**

The third primary theme focuses on the cultural history of the area. Topics under this theme include the use of Bear Island by Native Americans and pirates, as well as the role Bear Island played in the protection of the mainland during colonial times, the Civil War, and World War II. This theme also includes the role of Dr. Sharpe, the Hursts, the NC Teachers Association, and the Hammocks Beach Corporation in the creation of Hammocks Beach State Park.

**Acreage:** 1,155 land acres    **Visitation (2014):** 178,736    **County:** Onslow

### **Visitor Facilities**

1 Auditorium	1 Environmental Education Center
1 Bathhouse	3 Ferry Boat Dock
1 Boat Dock	1 Group Camp - Walk In
1 Boat Ramp	3 Group Campsite - Walk In
1 Cabin	1 Interpretive Building
2 Canoe Launch Point	1 Museum/Exhibit Hall
1 Classroom	1 Observation Structure
1 Concession	5 Parking Area - Public

4 Picnic Shelter  
1 Primitive Camp - Walk In  
14 Primitive Campsite - Walk In  
1 Restroom  
4 Shelter  
1 Swimming Area - Ocean or Sound  
1 Visitor Center  
Park has Paddle Trails

**Permanent Staff**

Park Superintendent - 1  
Park Ranger - 4  
Mechanic - 1  
Maintenance Mechanic – 2

Office Assistant - 2

**Seasonal Staff**

General Utility Worker - 7  
Ferryboat Operator - 7  
Lifeguard - 5  
Deckhand - 4  
Office Assistant - 3  
Refreshment Stand/bathhouse Fee Collector - 2  
Park Attendant/fee Collector - 1  
Chief Lifeguard - 1  
Park Technician/fee Collector - 1

## Haw River State Park

### Summary

Haw River State Park grew to nearly 1,000 acres in 2008 when the state parks system completed the purchase of 692 acres. The property was added to about 300 acres the state parks system acquired since 2004 to establish the park and which includes The Summit environmental education center. The Haw River headwaters area was one of only 12 sites in the state deemed suitable for a new state park in the system's 2001 New Parks for a New Century initiative.

The area supports several natural communities within the river floodplain and on the adjacent bluffs and uplands. The river corridor contains a large collection of wetlands, including what may be the largest complex of beaver ponds in the Piedmont. There are several areas with high quality upland forests and a couple of rare plant and animal species, as well as significant historic and archaeological resources.

Authorized by the General Assembly in 2003, the Haw River State Park is in the early stages of development for future public use. The first major acquisition for the state park was the Summit Center, a Retreat and Conference Center originally owned by the Episcopal Diocese. This facility is now operated as the division's first residential environmental education center and also provides conference facilities which can be rented for group activities.

Located near the headwaters of the Haw River, The Haw River State Park and Summit Environmental Education Center is situated on nearly 300 acres of piedmont forest, fields, wetlands, and uplands.

As land acquisition continues and Haw River State Park grows and develops the park will be able to provide additional resource protection of the Haw River Corridor and recreational opportunities for park visitors. We hope to include picnicking, camping, and hiking opportunities in the future. The Haw River Corridor is also a proposed route for the Mountains to Sea Trail.

Until additional properties are acquired for the state park, we do not have facilities for general public use. Visitors are welcome to come to visit and see what we are all about, but it is recommended that you call ahead: our operating hours are Monday -- Friday 8am to 5pm and we are closed most state holidays. If the Summit is reserved for a weekend group, we will open during those reservation hours. We also ask that visitors check in at the front desk before touring the grounds.

### Interpretive Themes

The interpretive themes for this park have not yet been entered.

**Acreage:** 1,379 land acres    **Visitation (2014):** 30,510    **Counties:** Rockingham, Guilford

### Visitor Facilities

2 Amphitheater	5 Lodge
1 Boathouse	8 Meeting Room
2 Classroom	6 Parking Area - Public
1 Conference Center	1 Parking Area - Public Unpaved
1 Dining Hall	1 Picnic Shelter
9 Disc Golf Hole	1 Pool
2 Environmental Education Center	1 Restroom
1 Fishing Pier	2 Swimming Platform

1 Tennis Court

**Permanent Staff**

Park Superintendent - 1  
Environmental Education Director - 1  
Administrative Assistant - 1  
Food Service Supervisor - 1  
Assistant Environmental Education Director - 1  
Maintenance Mechanic - 2  
Park Ranger - 2  
Maintenance Mechanic I - 1  
Food Service Supervisor - 1  
Cook - 1  
Housekeeping Supervisor - 1

Office Assistant - 1

**Seasonal Staff**

General Utility Worker - 18  
Environmental Education Instructor - 15  
Park Technician/fee Collector - 5  
Environmental Facility Culinary Sect. Intern - 2  
Lifeguard - 2  
Office Assistant - 1  
Natural Resource Technician - 1

## **Hanging Rock State Park**

### **Summary**

Not far from the cities of the Triad area, off the four-lane highways there's another North Carolina to be discovered sheer cliffs and peaks of bare rock, quiet forests and cascading waterfalls, views of the piedmont plateau that stretch for miles.

Hike the trails of Hanging Rock State Park and let nature put life's hectic pace in perspective. Rent a vacation cabin and fall asleep to the lullabies of spring peepers and chorus frogs. Join an interpretive program and discover something new about nature's bounty. Nestled in the hills is a cool mountain lake that beckons to swimmers and fishermen. Picnic areas and campgrounds lend themselves to time spent with family and friends. Hanging Rock State Park awaits you.

### **Interpretive Themes**

#### **GEOLOGY OF HANGING ROCK**

The geologic formation known as Hanging Rock is a quartzite monadnock located at the eastern end of the Sauratown Mountain Range. Educational activities emphasize the theories explaining the formation of the park's geologic features.

**Acreage:** 7,869 land acres    **Visitation (2014):** 480,938    **County:** Stokes

### **Visitor Facilities**

3 Amphitheater  
1 Auditorium  
1 Bathhouse  
1 Beach  
1 Boathouse  
10 Cabin - Improved  
73 Campsite - No Hookups  
1 Classroom  
1 Concession  
1 Dump Station  
1 Group Camp - Walk In  
5 Group Campsite - Walk In  
1 Museum/Exhibit Hall  
1 Observation Structure  
1 Park Office  
5 Parking Area - Public  
11 Parking Area - Public Unpaved  
2 Picnic Area  
3 Picnic Shelter  
1 Pier  
1 Pool  
1 Restroom  
2 Showerhouse  
1 Swimming Area - Freshwater

1 Tent and Trailer Camp  
5 Toilet Building  
4 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails  
Park has Interpretive Trails

### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 5  
Maintenance Mechanic - 4  
Office Assistant - 1

### **Seasonal Staff**

Lifeguard - 7  
Refreshment Stand/bathhouse Fee Collector - 5  
Park Attendant/fee Collector - 5  
General Utility Worker - 5  
Refreshment Stand/bathhouse Manager - 2  
Office Assistant - 2  
Chief Lifeguard - 1  
Park Technician/fee Collector - 1  
Environmental Education Instructor - 1

## **Jones Lake State Park**

### **Summary**

Venture to Jones Lake State Park and view one of the greatest geological mysteries of the eastern United States? The phenomenon of the Carolina bays. Adjacent to the Bladen Lakes State Forest and home of two natural lakes, Jones and Salters lakes, the 2,208-acre park is a nature lover's delight. Peaceful surroundings and a variety of facilities, including a trail with several outlooks that circles Jones Lake, make this state park a favorite for hiking, picnicking, swimming, fishing and camping.

### **Interpretive Themes**

#### **ORIGIN OF CAROLINA BAYS**

Photographs, models, games and investigations will be used to test some of the many theories explaining the formation of Carolina bays. Emphasis is placed on the physical characteristics of the Carolina bays, particularly their geomorphology.

#### **CAROLINA BAY ECOLOGY**

This interpretive theme focuses on the natural communities associated with the aquatic environment of bay lakes, the peat soils within the bays, and the mineral soils of the sand rims. Key animal species, such as the red-cockaded woodpecker and the fox squirrel, are included. Fire plays an important role in the ecology of the Carolina bays by creating and maintaining habitat for the plants and animals.

**Acreage:** 1,669 land acres / 539 water acres    **Visitation (2014):** 119,636    **County:** Bladen

### **Visitor Facilities**

1 Auditorium  
1 Bathhouse  
19 Campsite - No Hookups  
1 Campsite - Water & Electric  
1 Classroom  
1 Fishing Pier  
1 Group Camp - Drive To  
1 Group Campsite - Drive To  
1 Museum/Exhibit Hall  
2 Parking Area - Public  
7 Picnic Shelter  
1 Play Area w/ Equipment  
1 Restroom  
1 Showerhouse  
1 Swimming Area - Freshwater

1 Tent and Trailer Camp  
1 Visitor Center

#### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 3  
Office Assistant - 1

#### **Seasonal Staff**

Lifeguard - 5  
General Utility Worker - 3  
Refreshment Stand/bathhouse Fee Collector - 2  
Park Attendant/fee Collector - 2  
Office Assistant - 1

## **Jockey's Ridge State Park**

### **Summary**

There are many reasons why millions of people visit Jockey's Ridge State Park. Some come to see the tallest sand dune on the Atlantic coast; others come for the spectacular sunsets.

At Jockey's Ridge State Park you can experience the world of the desert. Shifting sands, high winds, extreme temperatures and a lack of water make the park resemble barren environments such as the Sahara Desert. You also can explore the wonders of an estuarine environment. The tidal waters of the Roanoke Sound, the western boundary of the park, is a rich habitat for a variety of plant and animal life, making these waters the source of much of the sea's bounty.

Whatever the reason for a visit to Jockey's Ridge, a trip to this unique park will give you even more reasons to come back again and again.

### **Interpretive Themes**

#### **SAND DUNES**

This theme focuses on the dynamics, movement, and formation of sand dunes. It also concerns the plant and animal adaptations to the dune environment and the cultural history of the dune area. In addition, it focuses on what sand is.

#### **DIVERSITY OF HABITATS**

This theme focuses on the plants and animals in the area, how they have created niches for each other, and how they modify sand movement. It also concerns how the plants and animals have adapted to the environment.

**Acreage:** 426 land acres    **Visitation (2014):** 1,237,276    **County:** Dare

### **Visitor Facilities**

- 1 Auditorium
- 1 Boardwalk
- 1 Interpretive Building
- 1 Museum/Exhibit Hall
- 2 Observation Structure
- 5 Parking Area - Public
- 9 Picnic Shelter
- 1 Restroom
- 1 Swimming Area - Ocean or Sound
- 1 Toilet Building
- 1 Visitor Center

### **Permanent Staff**

- Park Superintendent - 1
- Park Ranger - 4
- Maintenance Mechanic - 2
- Office Assistant - 1

### **Seasonal Staff**

- General Utility Worker - 5
- Park Technician/fee Collector - 3
- Park Attendant/fee Collector - 2
- Office Assistant - 1



## Lake James State Park

### Summary

Tucked into the rolling hill country at the base of mighty Linville Gorge is Lake James, a sprawling 6,812-acre reservoir with more than 150 miles of shoreline. This impressive waterway is the centerpiece of Lake James State Park, where nature offers scenic vistas of the Appalachian Mountain range and beckons those with an appetite for outdoor recreation.

Bring family and friends to one of North Carolina's most popular state parks for a variety of activities. Go swimming and sunbathing or enjoy a quiet picnic along the lakeshore. Boat, water ski or fish in the lake's cool mountain waters, or take a walk on the wild side and enjoy the beautiful forest wildflowers and abundant wildlife along park trails.

### Interpretive Themes

#### RESPONSIBLE AQUATIC RECREATION

Through aquatic studies, canoeing programs, fishing programs, and wetland hikes, the staff of Lake James State Park teaches the public how to enjoy the lake while minimizing human impacts on the aquatic ecosystem. Water safety is an integral part of all programs in this theme area.

#### WILDLIFE HABITATS

This theme focuses on the natural history and adaptations of animals that live in and around the lake. While learning about birds, mammals, reptiles and amphibians, park visitors have the opportunity to explore habitats in wetlands, woods and the lake itself. A popular annual program illustrates the importance of Lake James as a resting area for migratory waterfowl.

**Acreage:** 3,515 land acres    **Visitation (2014):** 471,566    **Counties:** Burke, McDowell

### Visitor Facilities

1 Amphitheater  
1 Bathhouse  
2 Beach  
2 Boat Dock  
1 Boat Ramp  
20 Campsite - No Hookups  
1 Concession  
3 Fishing Pier  
1 Horseshoe Pit  
2 Observation Structure  
1 Park Office  
11 Parking Area - Public  
1 Parking Area - Public Unpaved  
2 Picnic Area  
3 Picnic Shelter  
2 Pier  
1 Primitive Camp - Walk In  
1 Swimming Area - Freshwater  
3 Toilet Building

1 Toilet Building - Flush  
Park has > 5 mi of Hiking Trails

### Permanent Staff

Park Superintendent - 1  
Park Ranger - 4  
Maintenance Mechanic - 3  
Maintenance Mechanic I - 1  
Office Assistant - 1

### Seasonal Staff

Lifeguard - 7  
General Utility Worker - 5  
Refreshment Stand/bathhouse Fee Collector - 4  
Park Attendant/fee Collector - 2  
Refreshment Stand/bathhouse Manager - 2  
Park Technician/fee Collector - 1  
Office Assistant - 1  
Chief Lifeguard - 1

## Lake Norman State Park

### Summary

At Lake Norman State Park, fun is just a matter of scale. On one hand, there's the largest manmade lake in the state, Lake Norman. When filled to capacity, its surface area is 32,510 acres with a shoreline of 520 miles and a main channel 34 miles in length -- thus its nickname, the "Inland Sea." Thirteen miles of the shoreline are in the state park, which provides boating access.

On another hand, the park boasts its own 33-acre lake where fishing and boating are enjoyed. And with hiking and biking trails, picnic areas, interpretive programs and campgrounds, there's more to Lake Norman State Park than merely water.

### Interpretive Themes

#### OUTDOOR AQUATIC RECREATION

The purpose of the park is to provide public access to Lake Norman, North Carolina's largest man-made lake. Under the umbrella of aquatic recreation, activities can be developed on water safety, water quality and water conservation.

**Acreage:** 1,923 land acres    **Visitation (2014):** 551,081    **County:** Iredell

### Visitor Facilities

1 Amphitheater  
2 Bathhouse  
1 Beach  
3 Boat Dock  
1 Boat Ramp  
33 Campsite - No Hookups  
1 Community Building  
1 Concession  
1 Dump Station  
1 Fishing Pier  
1 Group Camp - Walk In  
3 Group Campsite - Walk In  
1 Park Office  
12 Parking Area - Public  
1 Parking Area - Trailer Unpaved  
4 Picnic Area  
3 Picnic Shelter  
1 Showerhouse  
1 Swimming Area - Freshwater  
1 Tent and Trailer Camp  
2 Toilet Building  
1 Toilet Building - Flush

1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Bicycle Trails

### Permanent Staff

Park Superintendent - 1  
Maintenance Mechanic III - 1  
Park Ranger - 4  
Office Assistant IV - 1  
Maintenance Mechanic - 3  
Office Assistant - 1

### Seasonal Staff

Lifeguard - 5  
Refreshment Stand/bathhouse Fee Collector - 4  
General Utility Worker - 3  
Refreshment Stand/bathhouse Manager - 2  
Park Attendant/fee Collector - 2  
Park Technician/fee Collector - 2  
Office Assistant - 2  
Chief Lifeguard - 1  
Section Intern Exhibits - 1

## Lake Waccamaw State Park

### Summary

The cool, tea-colored waters at first appear similar to other lakes in the area, but Lake Waccamaw is one of the most unique bodies of water in the world. You will find here species of animals found nowhere else on the planet, rare plants and endangered animals.

At Lake Waccamaw, you can view one of the greatest geological mysteries of the eastern United States- the phenomenon of Carolina bays. Limestone bluffs along the north shore neutralize Lake Waccamaw's water, making the lake different from any other Carolina Bay. Nearby, you can catch a glimpse of a botanical wonder - the Green Swamp.

From its sandy shorelines to its tree-lined natural areas, Lake Waccamaw offers peaceful surroundings, an intriguing natural history and fun in the sun.

### Interpretive Themes

#### LAKE WACCAMAW AQUATIC LIFE

This theme emphasizes the diversity of plant and animal life found in the lake, the factors that are responsible for its existence, and the need to protect the lake's water quality.

#### FRESHWATER MOLLUSKS

This theme focuses on identification of the many species, their habitat requirements, life history, distribution, and vulnerability.

#### ENDEMIC FISH

This theme includes identification of the species, their habitat requirements, life history, distribution, and vulnerability.

**Acreage:** 2,201 land acres / 8,938 water acres    **Visitation (2014):** 183,977    **County:** Columbus

### Visitor Facilities

1 Auditorium  
1 Classroom  
1 Group Camp - Walk In  
4 Group Campsite - Walk In  
1 Museum/Exhibit Hall  
1 Observation Structure  
4 Parking Area - Public  
1 Parking Area - Public Unpaved  
1 Picnic Area  
1 Pier  
1 Restroom  
1 Toilet Building  
3 Toilet Building - Non-Flush  
1 Visitor Center

Park has > 5 mi of Hiking Trails

#### Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1

#### Seasonal Staff

Park Attendant/fee Collector - 3  
General Utility Worker - 2  
Park Technician/fee Collector - 1  
Office Assistant - 1

## **Lumber River State Park**

### **Summary**

The Lumber River flows through the south-central portion of our state. The river's headwaters are in Montgomery, Moore, Richmond and Scotland counties where the waterway is known as Drowning Creek. The creek becomes a river at SR 1412/1203 along the Scotland-Hoke county line, and its waters flow into South Carolina, eventually joining the Little Pee Dee River.

Lumber River State Park contains 11,064 acres of land and 102 miles of state natural and scenic waters, 86.5 miles of which are also designated national wild and scenic waters. The park's recreation activities are currently centered at two access areas, Princess Ann and Chalk Banks. Princess Ann overlooks a unique reverse flow area named Griffin's Whirl. At the access, a bend in the river opens to a long, straight vista that beckons paddlers to take a ride. Chalk Banks, near the town of Wagram on the upper end of the river, has an interesting mixture of plants, fish, and animals from the sandhills and coastal plains regions.

Note: Due to the fluctuating water level of the Lumber River, canoeists and boaters should exercise caution in planning trips on the river. Add extra time for crossing exposed hazards and sandbars. All float times should include additional time to reach take-out points.

### **Interpretive Themes**

#### **WATER QUALITY OF THE LUMBER RIVER**

The Lumber River is an excellent example of a Coastal Plain, blackwater river. In 1989, it was designated by the General Assembly as a State River and, later, named as a National Wild and Scenic River. Along with these designations comes the responsibility of the state and its citizens to maintain the excellent water quality of the river and its tributaries. Educational programs within this theme emphasize stewardship and include major concepts such as watershed; river basin; water quality monitoring; water chemistry; sources of water pollution in the river basin; the dependence of aquatic life on water quality; and the relationship of water quality to the surrounding landforms, natural communities and human populations.

#### **NATURAL COMMUNITIES WITHIN THE LUMBER RIVER CORRIDOR**

The Lumber River's significant biological resources include the natural communities of the river, its floodplains and uplands. Educational programs in this theme area focus on the communities of the river channel and backwaters; the communities of the bottomland, swamp and sandbar typical of most blackwater rivers; and the variety of upland communities within the proposed park river corridor. Unusual upland communities, which add to the beauty and scenic character of the river, include the extremely dry, barren sand hills on relict sand dune deposits. Many acres of uplands are fire dependent and must be managed with prescribed fire since natural fire regimes are no longer possible. Ensuring that the public understands the role of prescribed fire in maintaining these communities is crucial to securing the position of prescribed fire as a management tool.

#### **WATER-BASED RECREATION AND SAFETY**

The 102-mile-long Lumber River offers a variety of scenic resources as it meanders through North Carolina's Coastal Plain. Many people enjoy canoeing, fishing and kayaking on the river as well as hiking and picnicking along its banks. While providing these recreational opportunities to an expanding human population, we must also maintain the quality of the resource. Educational programs in this theme area

stress stewardship and aquatic safety. Park staff helps visitors and others to enjoy the river in a responsible manner and to participate in its continued protection. The CATCH (youth fishing) program and interpretive canoe hikes are popular educational programs in this theme area.

**Acreage:** 11,259 land acres    **Visitation (2014):** 53,860    **Counties:** Columbus, Hoke, Robeson, Scotland  
**State River:** NATURAL - 34.5 miles RECREATIONAL - 15.5 miles SCENIC - 52.0 miles

#### **Visitor Facilities**

1 Boat Ramp  
9 Campsite - No Hookups  
1 Canoe Launch Point  
2 Group Camp - Walk In  
2 Group Campsite - Walk In  
1 Horseshoe Pit  
1 Observation Structure  
1 Office  
1 Park Office  
6 Parking Area - Public  
3 Picnic Area  
1 Picnic Shelter  
2 Primitive Camp - Walk In  
14 Primitive Campsite - Drive To  
7 Primitive Campsite - Paddle To

1 Tent and Trailer Camp  
3 Toilet Building  
1 Toilet Building - Non-Flush  
Park has Paddle Trails

#### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 4  
Office Assistant - 1  
Maintenance Mechanic - 2

#### **Seasonal Staff**

General Utility Worker - 3  
Park Attendant/fee Collector - 2

## **Mayo River State Park**

### **Summary**

Authorized by the General Assembly in May 2003, the Mayo River State Park Mayo Mountain Access is located along the Mayo River from Madison and Mayodan near the confluence with the Dan River north to the Virginia border. The Mayo River is ranked as nationally significant due to its numerous aquatic species. Numerous bluffs are found along the river including one of only two Piedmont Calcareous Cliff communities in the state. These xeric, rocky bluffs of calcite-cemented siltstone and sandstone in the Dan River Triassic Basin are home to rare plants and unique natural communities. Canoeing the river is a popular activity and picnicking, camping and other facilities are planned.

### **Interpretive Themes**

The interpretive themes for this park have not yet been entered.

**Acreage:** 2,187 land acres    **Visitation (2014):** 35,739    **County:** Rockingham

### **Visitor Facilities**

1 Historic Building  
1 Park Office  
4 Parking Area - Public  
1 Picnic Area  
1 Picnic Shelter  
1 Toilet Building

### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 1  
Maintenance Mechanic - 1  
Office Assistant - 1  
**Seasonal Staff**  
General Utility Worker - 3  
Park Attendant/fee Collector - 2

## **Merchants Millpond State Park**

### **Summary**

An "enchanted forest," primitive species of fish relatively unchanged over millions of years, towering bald cypress trees with massive trunks, luxuriant growths of Spanish moss -- this is Merchants Millpond State Park. Here, coastal pond and southern swamp forest mingle, creating one of North Carolina's rarest ecological communities. Together with upland forests, these environments create a haven for wildlife and humanity alike.

Escape the hectic pace of life and find sanctuary in a canoe. Drift along the smooth, dark surface of the millpond and savor the many sights and sounds that come alive in the stillness of the forest. Journey into remote and undisturbed Lassiter Swamp, a place that embodies the spirit of adventure, and see what you can discover.

If canoeing is not for you, fish for game species. Choose from an assortment of camping opportunities or enjoy a picnic beside the millpond. The remarkable surroundings of Merchants Millpond State Park lend themselves to a variety of activities.

### **Interpretive Themes**

#### **THE MILLPOND**

This theme focuses on the diversity of plant communities and types of the millpond, particularly the swamp forest. It also focuses on the millpond's animal communities and cultural history of the millpond. A special emphasis is placed on the hydrology of the millpond and its water quality.

#### **PLANT COMMUNITIES**

This theme concentrates on the diversity of plant communities and habitats in the park, including Lassiter Swamp and its big trees.

#### **SCENIC VALUE**

This theme focuses on the awe-inspiring beauty and wilderness feeling of the park.

**Acreage:** 3,447 land acres    **Visitation (2014):** 283,270    **County:** Gates

### **Visitor Facilities**

1 Auditorium	1 Picnic Shelter
2 Boat Dock	1 Primitive Camp - Walk In
23 Campsite - No Hookups	5 Primitive Campsite - Hike In
1 Canoe Launch Point	12 Primitive Campsite - Paddle To
2 Canoe Rental Building	1 Restroom
1 Classroom	1 Showerhouse
1 Group Camp - Paddle To	1 Tent and Trailer Camp
1 Group Camp - Walk In	2 Tent Camp - Paddle To
3 Group Campsite - Paddle To	1 Toilet Building
1 Interpretive Building	2 Toilet Building - Flush
6 Parking Area - Public	7 Toilet Building - Non-Flush
2 Parking Area - Public Unpaved	1 Visitor Center
3 Picnic Area	Park has > 5 mi of Hiking Trails

Park has Paddle Trails

**Permanent Staff**

Park Superintendent - 1

Park Ranger - 3

Office Assistant - 1

Maintenance Mechanic - 2

**Seasonal Staff**

General Utility Worker - 5

Park Attendant/fee Collector - 2



## Medoc Mountain State Park

### Summary

Should the humdrum of nine-to-five leave you with the urge to travel and explore, head to Medoc Mountain State Park. A pleasurable excursion awaits just 60 miles from the Raleigh area and only 8 miles off Interstate 95.

At Medoc Mountain, the urban refugee finds a welcome tranquility, a chance to embrace the outdoors. Trails beckon as light filters through branches overhead and falls on paths that hold the promise of new frontiers. The peacefulness gives the opportunity to refresh. The silence of the forest is broken only by bird songs and the occasional drumming of the pileated woodpecker. Grab your hiking boots. Load your camera. Spend some time at Medoc Mountain State Park and let nature renew your spirit.

### Interpretive Themes

#### GEOLOGY

One of the primary interpretive themes is the geology of Medoc Mountain, focusing on how the mountain was formed and its geologic composition. Emphasis is placed on the unusual rocks and minerals, such as molybdenum and pyrite.

#### ECOLOGY OF LITTLE FISHING CREEK

This theme focuses on Little Fishing Creek's biological diversity, aquatic habitats, and water quality.

#### PARK HISTORY AND ECOLOGY

Region's historic winery was located just east of the park boundaries. Vast stands of loblolly pine and mature hardwoods cover the park where high numbers of white-tailed deer and wild turkey are present in addition to wildlife including gray squirrels, cottontail rabbits, coyote, bobcat, and black bear.

**Acreage:** 3,893 land acres    **Visitation (2014):** 109,573    **County:** Halifax

### Visitor Facilities

13 Campsite - Electric Hookups  
5 Campsite - Equestrian  
21 Campsite - No Hookups  
2 Canoe Launch Point  
1 Classroom  
1 Dump Station  
1 Group Camp - Drive To  
4 Group Campsite - Drive To  
1 Museum/Exhibit Hall  
1 Office  
5 Parking Area - Public  
1 Parking Area - Trailer Unpaved  
1 Picnic Area  
2 Picnic Shelter  
1 Restroom  
2 Showerhouse

2 Tent and Trailer Camp  
1 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails

#### Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 2  
Maintenance Mechanic I - 1  
Office Assistant - 1

#### Seasonal Staff

General Utility Worker - 3  
Office Assistant - 2  
Park Attendant/fee Collector - 2

## Mount Mitchell State Park

### Summary

Rising more than a mile high, surrounded by the gentle mist of low-hanging clouds, Mount Mitchell State Park is one of North Carolina's most extraordinary places.

In the crest of the Black Mountains lies the summit of Mount Mitchell, the highest point east of the Mississippi. For those who ascend this timeworn yet still lofty peak, get to enjoy a feast for the eyes with breathtaking views of the Blue Ridge Mountains, mesmerizing cloud play, rolling ridges and fertile valleys. Forested and forever misty, 1,996-acre Mount Mitchell State Park will enchant you as it has been doing visitors for over a hundred years.

### Interpretive Themes

#### MOUNTAIN BUILDING

This geological theme explores the formation of the highest mountain range in eastern North America. The story of the formation of the southern Appalachians through structural disturbance of the earth's crust will be depicted, along with the nature of present-day landform features.

#### FOREST DECLINE

This theme includes explanations of how weather, soils, plants, animals and air pollution impact the spruce-fir forest on Mt. Mitchell. It answers a frequently-asked question of park visitors: What is happening to the trees? Scientists have yet to determine exactly what is responsible for the massive dying of Mount Mitchell's Fraser fir and red spruce trees. Natural causes include insect damage, especially the balsam woolly adelgid; ice storms; high winds; drought; and the age of trees. But natural factors alone are not sufficient explanation. Research indicates a correlation between air pollution and forest decline. In fact, four out of five days, Mt. Mitchell is covered in clouds and fog, sometimes as acidic as vinegar. Subjected to such pollution, a healthy tree becomes weak and is unable to fight off natural stresses it could otherwise resist.

#### BIOLOGICAL ISLANDS IN THE SKY

This theme focuses on the unique plants and animals associated with the mountains in the southern Appalachians that are over 5,500 feet in elevation. The spruce-fir forest on these high southern mountains forms islands in the sky, disjunct from each other and from those in southern Canada, which Mt. Mitchell's most closely resemble.

**Acreage:** 1,996 land acres    **Visitation (2014):** 280,966    **County:** Yancey

### Visitor Facilities

9 Campsite - No Hookups  
1 Classroom  
1 Community Building  
1 Meeting Room  
1 Museum  
1 Observation Structure  
1 Park Office  
8 Parking Area - Public  
2 Picnic Shelter

1 Primitive Camp - Walk In  
1 Restaurant  
1 Restroom  
1 Toilet Building - Flush  
Park has > 5 mi of Hiking Trails  
**Permanent Staff**  
Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2

Office Assistant - 1

**Seasonal Staff**

Refreshment Stand/bathhouse Fee Collector - 8

Park Attendant/fee Collector - 6

General Utility Worker - 4

Office Assistant - 2

Naturalist\_pt - 2

Park Technician/fee Collector - 1

Refreshment Stand/bathhouse Manager - 1

## Morrow Mountain State Park

### Summary

Enjoy the gifts of nature surrounded by the remnants of a once mighty range of peaks. Upon first encounter, the Uwharrie Mountains may seem like a mountainous mirage. These steep, rugged hills and unusual topography for the area form a stark contrast with the rolling countryside of the piedmont plateau.

Recreation is plentiful in and around the waters of Lake Tillery and the Yadkin / Pee Dee River. Fishing and boating are popular pastimes. Nature lovers can pick from miles of trails to travel on foot or horseback. And for those who want to stay and take it all in, cabins and camping are available. There's really only one word to describe Morrow Mountain State Park: variety. Use the family car or RV, horseback or canoe, put on a pair of hiking boots or dip bare feet in the river, or bait your favorite fishing pole. A visit to Morrow Mountain lets you choose your kind of adventure.

### Interpretive Themes

#### GEOLOGY OF THE UWHARRIES

The Uwharrie Mountains are part of a larger geologic formation called the Carolina slate belt, composed of slightly metamorphosed volcanic and sedimentary rocks. Metamorphosed rhyolite underlies most of the park's ridges and hills. Because of this rock's hardness, it was used extensively by Native Americans for making projectile points. Rhyolite tools have been found far from the park's location, from Maine to Florida and as far west as Ohio. Metamorphosed basalt (greenstone), a magnesium and iron-rich rock, is found in the rounded boulders scattered throughout the park.

**Acreage:** 4,496 land acres    **Visitation (2014):** 457,160    **County:** Stanly

### Visitor Facilities

1 Amphitheater  
1 Bathhouse  
1 Boathouse  
6 Cabin - Improved  
22 Campsite - Electric Hookups  
83 Campsite - No Hookups  
1 Community Building  
1 Group Camp - Drive To  
6 Group Campsite - Drive To  
1 Historic - House  
2 Historic Building  
1 Information Station  
1 Museum  
1 Museum/Exhibit Hall  
1 Observation Structure  
1 Office  
6 Parking Area - Public  
2 Parking Area - Public Unpaved  
2 Picnic Area  
3 Picnic Shelter

1 Pier  
1 Pool  
1 Primitive Camp - Walk In  
4 Primitive Campsite - Walk In  
1 Restroom  
3 Showerhouse  
1 Tent and Trailer Camp  
6 Toilet Building  
1 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails  
Park has Interpretive Trails

### Permanent Staff

Park Ranger - 4  
Park Superintendent - 1  
Maintenance Mechanic - 3  
Office Assistant - 2

**Seasonal Staff**

Refreshment Stand/bathhouse Fee Collector - 7

Lifeguard - 6

General Utility Worker - 6

Park Attendant/fee Collector - 5

Park Technician/fee Collector - 2

Refreshment Stand/bathhouse Manager - 2

Chief Lifeguard - 1

## **New River State Park**

### **Summary**

Rugged hillsides, pastoral meadows and farmlands surround what is believed to be one of the oldest rivers in North America is the New River. Its waters are slow and placid. Its banks are fertile and covered with wildflowers. Dedicated as a National Scenic River in 1976, this gentle river is the centerpiece of New River State Park.

The New River area still maintains an old-fashioned charm. Mountain roads are narrow and winding, dotted with small farms, churches and country stores. The river itself is tranquil, offering good bass fishing, trout streams, excellent birding and inspiring mountain scenery. But perhaps the best way to absorb and appreciate the river's peacefulness is from the seat of a canoe as it glides across the slow-moving waters. Four areas with access to this waterway make up more than 2,700 acres of New River State Park and provide spots for camping, canoeing, picnicking and fishing.

### **Interpretive Themes**

#### **THE RIVER'S GEOLOGIC HISTORY**

The New River corridor has many significant geologic resources, including ancient exposed rocks that originated an estimated 1 billion years ago. The New River has been called the second oldest river in the world," however this claim is a misconception that does not have sufficient scientific evidence. However, evidence does suggest that the region is part of one of the oldest drainages in North America. Land area that now includes the New River watershed likely drained westward before the origin of the Appalachian Mountains nearly 300 million years ago. Today, geologists continue to research and describe evidence of the unique geologic history along the New River.

#### **THE RIVER ECOLOGY**

This theme focuses on the river's natural communities and water quality.

#### **CULTURAL HISTORY**

This theme focuses on the human-use history of the river corridor including the struggle to maintain the integrity of this quality ecosystem and the preservation of its scenic qualities.

#### **WATER RECREATION, SAFETY AND ETHICS**

This theme aims to balance the diverse recreational uses of the river in a way that provides a safe and enjoyable experience for all. River etiquette issues include respect for other boaters, fishers and shoreline property. Water safety issues include proper river trip planning.

**Acreage:** 2,878 land acres    **Visitation (2014):** 187,223    **Counties:** Ashe, Alleghany

**State River:** SCENIC - 26.5 miles

### **Visitor Facilities**

1 Auditorium	1 Meeting Room
20 Campsite - Water & Electric	1 Museum/Exhibit Hall
8 Canoe Launch Point	1 Park Office
1 Classroom	13 Parking Area - Public
1 Community Building	1 Parking Area - Public Unpaved
1 Dump Station	4 Picnic Area

2 Picnic Shelter  
1 Primitive Camp - Walk In  
8 Primitive Campsite - Paddle To  
25 Primitive Campsite - Walk In  
1 Restroom  
3 Showerhouse  
1 Tent and Trailer Camp  
1 Tent Camp - Paddle To  
1 Toilet Building  
6 Toilet Building - Non-Flush  
1 Visitor Center  
Park has Paddle Trails  
Park has Interpretive Trails

**Permanent Staff**

Park Ranger - 5  
Park Superintendent - 1  
Maintenance Mechanic - 3  
Office Assistant - 2

**Seasonal Staff**

Park Attendant/fee Collector - 9  
General Utility Worker - 4  
Park Technician/fee Collector - 2  
Office Assistant - 2  
Natural Resource Technician - 1

## **Pettigrew State Park**

### **Summary**

With more than 1,300 acres of land around Lake Phelps and more than 4,400 acres along the Scuppernong River, with an additional 16,600 acres of water, Pettigrew State Park is an ideal blend of nature, history and recreation.

Explore Lake Phelps and examine dugout canoes as ancient as the pyramids. Or cast your line into crystal-clear waters where largemouth bass reign. Take a trip back in time at the grave of a great Confederate general. Or hug a tree as wide as an elephant. Paddle down one of North Carolina's last undeveloped rivers.

Pettigrew exhibits its history among picturesque natural surroundings. Majestic cypress trees tower above as the branches of tulip poplar and swamp chestnut oak provide perches for songbirds. Wildflowers decorate the landscape with a splash of color.

### **Interpretive Themes**

#### **NATIVE AMERICANS**

This theme focuses on the Native American culture of northeastern North Carolina, including pottery making and hunting and gathering techniques. It also focuses on the artifacts discovered at the park, particularly the very old dug-out canoes and pottery shards.

#### **PHELPS LAKE**

This theme focuses on the uniqueness of the lake. Lake Phelps is unique because of its water quality, size (one of the largest natural lakes in the state), plant and animal life (both seasonal and permanent users), and cultural history (from Native Americans users up to present-day use and impacts).

#### **OLD-GROWTH TREES**

This theme focuses on the park's big trees. In 2000, there were eight state-record trees, two of which were national champions. The theme also covers the plant communities in which the large trees are found, as well as the animal habitat provided by the trees and their communities. The relationship of the lake to the woodlands is also part of this theme.

#### **ASTRONOMY**

Pettigrew has one of the darkest skies on the East Coast providing unique viewing opportunities whether viewing through high powered telescopes, binoculars or even the unaided eye.

**Acreeage:** 5,830 land acres/16,600 water acres   **Visitation (2014):** 72,251   **Counties:** Washington, Tyrrell

### **Visitor Facilities**

1 Boat Dock	1 Museum/Exhibit Hall
1 Boat Ramp	1 Observation Structure
13 Campsite - No Hookups	1 Park Office
1 Fishing Pier	6 Parking Area - Public
1 Group Camp - Walk In	1 Parking Area - Public Unpaved
1 Group Campsite - Walk In	1 Picnic Area
1 Information Station	2 Picnic Shelter



1 Pier  
1 Restroom  
1 Showerhouse  
1 Tent and Trailer Camp  
2 Toilet Building  
2 Toilet Building - Non-Flush  
Park has > 5 mi of Hiking Trails  
Park has Bicycle Trails

**Permanent Staff**

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 2  
Office Assistant - 1

**Seasonal Staff**

General Utility Worker - 5  
Park Attendant/fee Collector - 2  
Office Assistant - 1

## **Pilot Mountain State Park**

### **Summary**

Pilot Mountain has served, for centuries, as a landmark for Native Americans, early explorers, and migrating wildlife. This iconic peak is the most recognizable mountain in North Carolina and forms the centerpiece of Pilot Mountain State Park. Rising to an elevation of 2421 feet, this solitary quartzite mountain, part of the ancient Sauratown Mountain range, was dedicated as a National Natural Landmark, and now serves as a beacon to hikers, rock climbers, and nature lovers.

6.5 mile wooded corridor trail joins the Mountain Section of the park with the Yadkin River Section which includes the north and south side of the river and a dozen small islands. This scenic section of the Yadkin provides hiking trails, fishing, and includes a canal wall built in 1825 that was designed to deliver boat traffic above the rocky shoals that form islands in this portion of the river.

Since 1968, a portion of the wild piedmont and a geological wonder has been preserved for you to enjoy at Pilot Mountain State Park.

### **Interpretive Themes**

#### **THE GEOLOGIC FORMATION OF THE SAURATOWN MOUNTAIN RANGE**

Interpretive programs focus on the formation of the mountains, highlighting the various geologic processes that cause mountain building, and the weathering and erosion that shaped Pilot Mountain and other geologic features in the park. The significance of this feature as a National Natural Landmark is emphasized.

#### **YADKIN RIVER BASIN:**

This theme focuses on how the river has shaped the land around it, from its origin along the eastern Continental Divide to where it joins other rivers in the Piedmont. The river's free-flowing status, subsequent water quality, and species composition are highlighted.

**Acreeage:** 3,663 land acres    **Visitation (2014):** 378,389    **Counties:** Surry, Yadkin

### **Visitor Facilities**

49 Campsite - No Hookups  
1 Canoe Launch Point  
1 Group Camp - Drive To  
2 Group Campsite - Drive To  
1 Historic - House  
1 Park Office  
5 Parking Area - Public  
5 Parking Area - Public Unpaved  
2 Picnic Area  
1 Picnic Shelter  
2 Showerhouse  
1 Tent and Trailer Camp  
5 Toilet Building  
1 Toilet Building - Flush

Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails  
Park has Paddle Trails

### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 4  
Office Assistant - 1  
Maintenance Mechanic - 3

### **Seasonal Staff**

General Utility Worker - 5  
Office Assistant - 3  
Park Attendant/fee Collector - 3

## **Raven Rock State Park**

### **Summary**

Should the humdrum of the work week leave you with the urge to travel and explore, head to Raven Rock State Park. Adventure is just an hour's drive from the Research Triangle and only 45 minutes from the Fayetteville area.

The first feeling you are likely to experience at Raven Rock is one of renewal. Here, the forest reigns as each year the timeless cycle of growth further heals age-old wounds inflicted by man. Nature triumphs as plants compete in the stages of forest succession and the woodlands are restored. High above the Cape Fear River stands Raven Rock, its austere beauty a testament to the forces that have shaped the land. As the river below rushes to join the sea, nature's elements continue to shape the surface of this natural monument.

Spend some time at Raven Rock State Park and let nature refresh your spirit.

### **Interpretive Themes**

#### **GEOLOGY OF RAVEN ROCK**

Most of the park's unique geological features result from its location in the fall zone -- the area where the hard resistant rocks of the Piedmont meet the sediments and softer rocks of the Coastal Plain. Students and other park visitors can participate the park's Environmental Education Learning Experience activities and interpretive programs that help them discover the composition geologic history of Raven Rock. They can also explore the gravel terraces on higher ridges within the park that were deposited on top of the Raven Rock feature by the ancestral Cape Fear River. And, they can observe how the modern Cape Fear River continues to sculpt and erode the rock today, such as at Fish Traps and Lanier Falls.

#### **THE ECOLOGY OF THE FALL ZONE**

As a result of its unique position in the fall zone, the park harbors a remarkable diversity of natural communities and species. The park is located in Harnett County where the Piedmont, Sandhills and Coastal Plain come together. Thus, ecological characteristics of all three regions are found within the park. Of particular significance are examples of several natural communities, Piedmont/Mountain Levee Forest and remnant examples of Piedmont Longleaf Pine Forest. Interpretive programs, guided trail hikes and a self-guided nature trail allow park visitors to explore relationships between the geology and the fauna and flora, e.g., flat rocks, cliff faces, vernal pools, basic soils. Visitors can also learn to recognize the natural communities that identify the Piedmont/Coastal Plain interface.

#### **NATURAL AND CULTURAL HISTORY OF THE CAPE FEAR RIVER**

Visitors learn about the natural and cultural history of the Cape Fear River. The headwaters originate in the central and eastern Piedmont with a drainage basin about 3,400 square miles upstream from the park. Bisected by the Cape Fear River, Raven Rock State Park provides an excellent location to study our state's largest river basin. Visitors and students can explore several of the streams in the park that feed the river, test water quality and examine macro-invertebrates. The park has a rich cultural history related to the river. Prior to development of the railroad system in the late 1800s, the Cape Fear River was the primary artery of transportation for people and goods between Wilmington and points inland. Both the Northington Ferry and a series of locks and dams were constructed on what is now park property.

**Acreage:** 4,694 land acres    **Visitation (2014):** 197,534    **County:** Harnett

**Visitor Facilities**

2 Canoe Launch Point  
1 Concession  
1 Group Camp - Paddle To  
1 Group Camp - Walk In  
6 Group Campsite - Paddle To  
5 Group Campsite - Walk In  
1 Observation Structure  
1 Park Office  
6 Parking Area - Public  
2 Parking Area - Public Unpaved  
2 Picnic Area  
1 Picnic Shelter  
1 Primitive Camp - Walk In  
5 Primitive Campsite - Walk In  
1 Toilet Building  
5 Toilet Building - Non-Flush

1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails  
Park has Paddle Trails

**Permanent Staff**

Park Superintendent - 1  
Maintenance Mechanic - 2  
Park Ranger - 2  
Office Assistant - 1

**Seasonal Staff**

General Utility Worker - 4  
Park Attendant/fee Collector - 3  
Office Assistant - 2  
Park Technician/fee Collector - 2

## **Singletary Lake State Park**

### **Summary**

Bring your group to Singletary Lake State Park and enjoy group camping in a land of mysterious origins. A portion of the unique Carolina bay ecosystem found nowhere else in the world, Singletary Lake lies within the 35,975-acre Bladen Lakes State Forest.

Developed primarily for organized group camping, the park is comprised of 649 acres of land and a 572-acre natural lake. In addition to group camping, Singletary Lake State Park offers ample opportunities for nature study and recreation.

### **Interpretive Themes**

#### **ORIGIN OF CAROLINA BAYS**

Photographs, models, games and investigations will be used to test some of the many theories explaining the formation of Carolina bays. Emphasis is placed on the physical characteristics of the Carolina bays, particularly their geomorphology.

#### **CAROLINA BAY ECOLOGY**

This interpretive theme focuses on the natural communities associated with the aquatic environment of bay lakes, the peat soils within the bays, and the mineral soils of the sand rims. Key animal species, such as the red-cockaded woodpecker and the fox squirrel, are included. Fire plays an important role in the ecology of the Carolina bays by creating and maintaining habitat for the plants and animals.

**Acreage:** 649 land acres/572 water acres    **Visitation (2014):** 15,278    **County:** Bladen

### **Visitor Facilities**

16 Cabin - Group  
2 Dining Hall  
1 Environmental Education Center  
2 Interpretive Building  
1 Park Office  
3 Parking Area - Public  
1 Pier  
3 Play Area w/ Equipment  
1 Restroom  
2 Showerhouse

### **Permanent Staff**

Park Superintendent - 1  
Park Ranger - 1  
Office Assistant - 1  
Maintenance Mechanic - 2

### **Seasonal Staff**

General Utility Worker - 1

## South Mountains State Park

### Summary

Nestled deep in the woods, South Mountains State Park is the perfect place to enjoy nature. Here you can see a majestic mountain range peeking out from the gently rolling landscape of the Piedmont. The park includes elevations up to 3,000 feet, a waterfall dropping 80 feet and more than 40 miles of trails. From equestrian camping to trout fishing, mountain biking to picnicking, a number of activities are available at South Mountains State Park.

Visit one of the state's most rugged parks. Hike the trail to High Shoals Falls to witness the roar of the waterfall as it pours into a large pool. Backpack through the woodlands for primitive camping. Fish for trout in miles of mountain streams, or bicycle along the 17-mile mountain-bike loop.

### Interpretive Themes

#### JACOB'S FORK WATERSHED ECOLOGY

The study of the Jacob's Fork watershed ecology should focus on two areas: The transition from Piedmont to Mountain in terrain and biotas, and the high quality of the watershed including the sensitive plants and animals that live in and around the river.

**Acreage:** 18,627 land acres    **Visitation (2014):** 220,512    **County:** Burke

### Visitor Facilities

1 Amphitheater  
1 Auditorium  
6 Backcountry Campground  
2 Cabin  
15 Campsite - Equestrian  
11 Campsite - No Hookups  
1 Classroom  
1 Fishing Pier  
1 Information Station  
1 Interpretive Building  
1 Museum/Exhibit Hall  
2 Observation Structure  
8 Parking Area - Public  
14 Parking Area - Trailer Unpaved  
1 Picnic Area  
1 Picnic Shelter  
20 Primitive Campsite - Hike In  
1 Restroom  
1 Showerhouse

2 Tent and Trailer Camp  
2 Toilet Building - Flush  
9 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Bicycle Trails  
Park has Equestrian Trails  
Park has Interpretive Trails

### Permanent Staff

Park Superintendent - 1  
Park Ranger - 7  
Maintenance Mechanic - 3  
Office Assistant - 1

### Seasonal Staff

General Utility Worker - 9  
Office Assistant - 2  
Park Attendant/fee Collector - 2

## Stone Mountain State Park

### Summary

Stone Mountain is not immediately visible upon entering the park that bears its name, but this magnificent 600-foot granite dome is well worth the wait. Sunlight and shadows dance across a broad tapestry of stone. White-tailed deer emerge from the security of the forest to graze on meadow grasses at the mountain's base. The scenery is only one attraction of the park.

Test your fly-fishing techniques in more than 20 miles of designated trout waters. Or, with more than 16 miles of trails, take a hike in the park. Designated as a National Natural Landmark in 1975, Stone Mountain is bounded on the north by the Blue Ridge Parkway and on the west by the Thurmond Chatham Game Lands. More than 14,100 acres of mountain beauty offer opportunities for outdoor activities of all kinds.

### Interpretive Themes

#### GEOLOGY OF STONE MOUNTAIN

The geologic formation known as Stone Mountain is a plutonic monadnock of granodiorite, an intrusive igneous rock similar to granite. This rock formed from magma that intruded into surrounding older rock (biotite gneiss) during the Paleozoic era about 390 million years ago. The overlying rock was removed through millions of years of erosion to expose the granodiorite dome known as Stone Mountain.

**Acreage:** 14,351 land acres    **Visitation (2014):** 380,842    **Counties:** Wilkes, Alleghany

### Visitor Facilities

1 Amphitheater  
47 Campsite - No Hookups  
41 Campsite - Water & Electric  
1 Dump Station  
3 Fishing Pier  
1 Group Camp - Drive To  
4 Group Campsite - Drive To  
1 Historic Area  
13 Historic Building  
1 Information Station  
1 Meeting Room  
1 Museum/Exhibit Hall  
19 Parking Area - Public  
2 Parking Area - Public Unpaved  
1 Parking Area - Trailer  
2 Picnic Area  
3 Picnic Shelter  
6 Primitive Campsite - Hike In  
1 Restroom  
4 Showerhouse  
1 Tent and Trailer Camp  
3 Toilet Building

1 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails

### Permanent Staff

Park Superintendent - 1  
Park Ranger - 5  
Maintenance Mechanic - 4  
Office Assistant - 1  
Office Assistant III - 1

### Seasonal Staff

Park Attendant/fee Collector - 8  
General Utility Worker - 4  
Office Assistant - 2

## **William B. Umstead State Park**

### **Summary**

Tucked between the growing cities of Raleigh, Cary, Durham and the corporate world of Research Triangle Park is an oasis of tranquility, a peaceful haven -- William B. Umstead State Park.

Here, two worlds merge as the sounds of civilization give way to the unhurried rhythm of nature. Highways fade in the distance as trees, flowers, birds and streams form a more natural community. William B. Umstead is a place to escape the pressures of everyday life, a place to picnic in the pines, to wait for a fish to bite, to take a hike or horseback ride on trails through the woods.

Divided into two sections, Crabtree Creek and Reedy Creek, this 5,599-acre park is easily accessible from Interstate 40 and US 70. Visit William B. Umstead State Park and enjoy this region of wilderness at the city's doorstep.

### **Interpretive Themes**

#### **RECLAMATION, REGENERATION AND RECOVERY**

This theme focuses on the changes that have occurred in the park landscape from the park's establishment as a federal conservation and recreation program to its present day state park status. U.S. Government photographs and reports are available describing the condition of park lands in the 1930s. The role of Civilian Conservation Corps reclamation efforts warrants special emphasis.

#### **SUCCESSIONAL PROCESSES AND SECOND GROWTH FORESTS**

This theme describes the natural processes by which the park evolved from barren open lands to diverse, mature natural communities.

#### **LAND STEWARDSHIP**

The land stewardship theme focuses on the importance of the park as a large open space in a growing metropolitan area. Aesthetic values and resource management issues such as overuse, noise, and water pollution are emphasized.

**Acreage:** 5,592 land acres    **Visitation (2014):** 1,293,063    **County:** Wake

### **Visitor Facilities**

- 3 Amphitheater
- 1 Auditorium
- 1 Boathouse
- 100 Cabin - Group
- 28 Campsite - No Hookups
- 1 Classroom
- 4 Dining Hall
- 3 Group Camp - Drive To
- 1 Group Camp - Walk In
- 1 Group Campsite - Drive To
- 1 Group Campsite - Walk In
- 2 Lodge
- 1 Museum/Exhibit Hall
- 1 Observation Structure



1 Park Office  
9 Parking Area - Public  
2 Parking Area - Public Unpaved  
1 Parking Area - Trailer  
1 Picnic Area  
4 Picnic Shelter  
1 Play Area  
3 Restrooms  
3 Showerhouse  
1 Tent and Trailer Camp  
12 Toilet Building  
3 Toilet Building - Flush  
1 Toilet Building - Non-Flush  
1 Visitor Center  
Park has > 5 mi of Hiking Trails  
Park has Bicycle Trails  
Park has Equestrian Trails

**Permanent Staff**

Park Superintendent - 1  
Park Ranger - 6  
Maintenance Mechanic - 4  
Office Assistant - 2

**Seasonal Staff**

Park Attendant/fee Collector - 10  
General Utility Worker - 3  
Park Intern - 2  
Park Technician/fee Collector – 1

## **Falls Lake State Recreation Area**

### **Summary**

Just moments away from the hustle and bustle of the city, Falls Lake is a great way to escape urban life. With a 12,000-acre lake and 26,000 acres of woodlands, Falls Lake State Recreation Area offers a choice of recreation areas Beaverdam, B.W. Wells, Highway 50, Holly Point, Rolling View, Sandling Beach and Shinleaf. Fishing, boating and swimming are only a few of the activities awaiting you on the water. On land, you can enjoy walking, mountain biking or camping along a portion of the state's Mountains-to-Sea Trail. From recreation to environmental education, no matter what you are looking for, you are sure to discover it at Falls Lake.

### **Interpretive Themes**

#### **WATER-BASED RECREATION AND SAFETY**

Falls Lake affords many recreational opportunities such as fishing, sailing, boating, skiing and swimming. Educational programs in this theme area stress water safety and stewardship. While providing these recreational opportunities to an expanding urban population, we must also maintain the quality of the resource. Balancing quality of life with quality of the environment is a central theme in environmental education.

#### **FISH AND WILDLIFE HABITATS**

The construction of the Falls Lake dam changed the aquatic habitats in the Neuse River. A comparison of the macroinvertebrates and fish species in the Eno River with those in Falls Lake shows how a dramatic change in habitat can affect animal populations. Today, continuous stocking programs in Falls Lake ensure populations of largemouth bass, bluegill, catfish, striped bass and crappie. Forests around the lake offer habitat for nesting bald eagles, wood ducks, song birds and reptiles. Educational programs focus on wildlife habitats, biological communities and how humans interact with these communities.

**Acreeage:** 5,035 land acres    **Visitation (2014):** 1,080,730    **Counties:** Wake, Durham

### **Visitor Facilities**

4 Amphitheater  
5 Bathhouse  
10 Beach  
15 Boat Dock  
5 Boat Ramp  
100 Campsite - No Hookups  
176 Campsite - Water & Electric  
1 Community Building  
2 Dump Station  
5 Fishing Pier  
3 Group Camp - Drive To  
27 Group Campsite - Drive To  
2 Historic - House  
2 Historic Building  
1 Marina  
1 Park Office  
80 Parking Area - Public  
1 Parking Area - Public Unpaved  
4 Parking Area - Trailer

2 Parking Area - Trailer Unpaved  
13 Picnic Area  
22 Picnic Shelter  
2 Play Area  
8 Play Area w/ Equipment  
1 Primitive Camp - Walk In  
47 Primitive Campsite - Walk In  
12 Showerhouse  
5 Swimming Area - Freshwater  
2 Tent and Trailer Camp  
17 Toilet Building  
8 Toilet Building - Non-Flush  
Park has > 5 mi of Hiking Trails  
Park has Bicycle Trails

**Permanent Staff**

Park Superintendent - 2  
Facility Maintenance Supv - 1  
Park Ranger - 12  
Mechanic - 1  
Office Assistant - 2  
Wastewater Treatment Area OP - 1  
Trades Worker - 1  
Maintenance Mechanic - 10

**Seasonal Staff**

Park Attendant/fee Collector - 27  
General Utility Worker - 23  
Park Technician/fee Collector - 13  
Refreshment Stand/bathhouse Fee Collector - 8  
Office Assistant - 2  
Natural Resource Technician – 1

## **Fort Fisher State Recreation Area**

### **Summary**

Enjoy a leisurely day at the ocean shore. Comb the beach for sea stars, keyhole urchins and whelk shells. Or, simply lie back on the sand and enjoy the aerial acrobatics of seagulls, terns and brown pelicans as they soar above the waves. You may want to venture into the mud flats and marshes to watch sandpipers and other shorebirds as they search for food. Learn about endangered species. Loggerhead sea turtles, piping plovers and other rare species nest along this sandy shore. Explore the North Carolina coast; visit Fort Fisher State Recreation Area. This stretch of pristine shoreline offers many enjoyable activities. Approximately six miles of beach provide all the sun, sand, sea and sky you can soak up in a day. Experience the ocean away from all the crowds. From the recreation area parking lot, an elevated boardwalk leads over the sand dunes to the beach, from where visitors can walk along one of the few remaining undeveloped stretches of shoreline on our southern coast. Located on the southern tip of Pleasure Island near Wilmington, Fort Fisher lies between the Atlantic Ocean on the east and the Cape Fear River on the west. Here are miles of white, sandy beach for sunning, swimming and fishing. The salt marsh, tidal creeks and mud flats form a natural outdoor laboratory exhibiting the wonders of a coastal environment.

### **Interpretive Themes**

#### **COASTAL WATERBIRDS**

This theme focuses on the many species of waterbirds that use the barrier spit in the park during different seasons. Major concepts for interpretive programs include colonial nesting waterbirds, solitary nesting waterbirds, migration patterns, endangered species, bird identification, birds of prey, and park resource management efforts. The Environmental Education Learning Experience (EELE) investigates colonial nesting waterbirds active in the park during the summer months.

#### **SEA TURTLES**

The park protects the threatened loggerhead sea turtle, which nests along the ocean front beach from May through August. Interpretive programs and exhibits in this theme area include sea turtle nesting, life history, migration routes, protection efforts and threats to the turtle's survival.

#### **BARRIER SPIT ECOLOGY**

Fort Fisher is a barrier spit, a place of ever-changing sand and water. Programs and other interpretive products in this theme area describe the dynamic geology as well as the plants and animals that have adapted to, and thrive in this unstable environment. Topics include migrating inlets, sand movement along the beach, beach front erosion, human impacts on barrier spit ecology, dune development and successional vegetative communities.

#### **RECREATION**

This theme focuses on safety, beach access points and the main user activities: swimming, walking, nature study and fishing. Through exhibits and programs, visitors are encouraged to minimize their impacts on this fragile area.

**Acreage:** 287 land acres    **Visitation (2014):** 790,334    **County:** New Hanover

### **Visitor Facilities**

- 1 Bathhouse
- 1 Classroom
- 1 Concession
- 1 Museum/Exhibit Hall
- 2 Parking Area - Public

1 Picnic Area  
1 Swimming Area - Ocean or Sound  
1 Visitor Center

**Permanent Staff**

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1

**Seasonal Staff**

Lifeguard - 5  
Refreshment Stand/bathhouse Fee Collector - 2  
Office Assistant - 2  
General Utility Worker - 2  
Park Attendant/fee Collector - 2  
Park Technician/fee Collector - 2  
Chief Lifeguard - 1  
Refreshment Stand/bathhouse Manager - 1

## **Jordan Lake State Recreation Area**

### **Summary**

Imagine relaxing in a cove, listening to the sounds of water rippling. Then, you feel a firm tug on your fishing line. It's going to be a big one! Picture the surface of the lake glistening, water spraying your face, the boat motor ahead roaring. Suddenly, your skis give way -- a splash landing! Hear the laughter of children, smell burgers roasting over a charcoal fire, feel a breeze blowing through the campground. With almost 14,000 acres of water, all this and more is yours to discover at Jordan Lake. The NC Division of Parks and Recreation operates nine recreation areas on the lake -- Crosswinds Campground, Ebenezer Church, Parker's Creek, Poplar Point, Seaforth, Vista Point, Robeson Creek, New Hope Overlook, and White Oak Recreation Area. Whether you're looking for fun in the sun or an evening under the stars, Jordan Lake offers it all.

### **Interpretive Themes**

#### **AQUATIC RESOURCES: WE ALL LIVE DOWNSTREAM**

Jordan Lake is an important resource for recreation, wildlife and drinking water. Human land use in the watershed affects the lake's water quality. Agricultural land use and urban land use in the watershed contributes to storm water runoff, adding an excess of sediment and nutrients to the lake. Programs in this theme area focus on aquatic life, water quality and water quantity. The popular C.A.S.T. (Catch, A Sure Thing) program introduces children to fish biology, fish identification, fishing techniques and outdoor ethics. Other aquatic programs such as "Pond Life" give visitors a hands-on experience with the aquatic life in one of the ponds in the park.

#### **AREA WILDLIFE: PREDATOR-PREY**

In addition to predator-prey relationships, this theme includes related ecological concepts such as food chain, food web, habitat, adaptation and resource management. Most visitors explore predator-prey relationships through interpretive talks and nature hikes that focus on the bald eagle and other area wildlife. Elementary students participate in activities from the EELE (Environmental Education Learning Experience), Predators and Prey, which emphasizes the bald eagle and its prey. In both the EELE and interpretive programs, human impacts on food chains and animal habitats are discussed and stewardship is encouraged.

#### **CULTURAL HISTORY**

This theme highlights the past human history of the New Hope River Valley. Archaeologists have explored the remains of 450 prehistoric and historic sites in the area and have uncovered many Indian artifacts. Scottish Highlanders settled the area in the 1740s. Interpretive programs illustrate how various cultures used the natural resources of the upper Cape Fear River Basin. The park hosts Heritage Day on the first Saturday of October to celebrate the cultural history of the area.

**Acreage:** 4,558 land acres    **Visitation (2014):** 1,273,483    **County:** Chatham

### **Visitor Facilities**

3 Amphitheater  
1 Auditorium  
3 Bathhouse  
6 Beach  
14 Boat Dock  
11 Boat Ramp  
398 Campsite - Electric Hookups  
391 Campsite - No Hookups

232 Campsite - Water & Electric  
2 Canoe Launch Point  
1 Classroom  
4 Dump Station  
1 Fishing Pier  
2 Group Camp - Drive To  
11 Group Campsite - Drive To  
1 Marina  
1 Meeting Room  
1 Museum/Exhibit Hall  
1 Office  
78 Parking Area - Public  
4 Parking Area - Public Unpaved  
14 Parking Area - Trailer  
9 Picnic Area  
11 Picnic Shelter  
11 Play Area w/ Equipment  
2 Primitive Camp - Walk In  
24 Primitive Campsite - Walk In  
18 Showerhouse  
7 Swimming Area - Freshwater  
5 Tent and Trailer Camp  
18 Toilet Building  
3 Toilet Building - Non-Flush  
1 Trash Station  
1 Visitor Center  
Park has > 5 mi of Hiking Trails

**Permanent Staff**

Park Superintendent - 2  
Facility Maintenance Supv - 1  
Wastewater Treatment Area OP - 1  
Park Ranger - 16  
Electrician - 1  
Maintenance Mechanic - 5  
Mechanic - 2  
Office Assistant - 1  
Trades Worker - 1  
Processing Assistant - 1

**Seasonal Staff**

Park Attendant/fee Collector - 36  
General Utility Worker - 36  
Park Technician/fee Collector - 19  
Office Assistant – 2

## **Kerr Lake State Recreation Area**

### **Summary**

Set a course for Kerr Lake State Recreation Area to enjoy sailing, fishing, water skiing and camping. This 50,000-acre, man-made lake is a haven for water sports enthusiasts and landlubbers alike. The lake is situated in the northeast corner of the Piedmont region and lies in both Virginia and North Carolina. The recreation area's headquarters are located north of Henderson at Satterwhite Point. More than 800 miles of wooded shoreline provide access to a variety of fun-filled activities on the lake. Relax and enjoy water sports at any of the seven recreation areas operated by the NC Division of Parks and Recreation along this expansive reservoir.

### **Interpretive Themes**

#### **KERR RESERVOIR WATER MANAGEMENT**

This theme includes a discussion of the Roanoke River Basin and how Kerr Reservoir and Dam is used to control flooding, water quality and water supply in the area.

#### **WATER-RELATED RECREATION**

This theme features a short discussion of the many recreation opportunities that exist at Kerr Reservoir, with water safety and stewardship of the area being stressed.

#### **FISH OF KERR RESERVOIR**

This theme focuses on the striped bass and its ecosystem.

**Acreage:** 3,376 land acres    **Visitation (2014):** 1,099,644    **Counties:** Vance, Warren

### **Visitor Facilities**

- 1 Amphitheater
- 1 Beach
- 28 Boat Dock
- 18 Boat Ramp
- 78 Campsite - Electric Hookups
- 251 Campsite - No Hookups
- 284 Campsite - Water & Electric
- 3 Community Building
- 3 Concession
- 5 Dump Station
- 2 Fishing Pier
- 2 Group Camp - Drive To
- 1 Group Campsite - Drive To
- 1 Information Station
- 1 Marina
- 1 Meeting Room
- 1 Museum/Exhibit Hall
- 3 Office
- 66 Parking Area - Public



6 Parking Area - Public Unpaved  
3 Parking Area - Trailer  
7 Parking Area - Trailer Unpaved  
11 Picnic Shelter  
3 Play Area w/ Equipment  
1 Restroom  
1 Shelter  
16 Showerhouse  
1 Swimming Area - Freshwater  
7 Tent and Trailer Camp  
19 Toilet Building  
1 Toilet Building - Flush  
1 Visitor Center  
Park has Interpretive Trails

**Permanent Staff**

Park Superintendent - 2  
Park Ranger - 11  
Facility Maintenance Supv - 1  
Mechanic - 2  
Office Assistant - 2  
Maintenance Mechanic - 11

**Seasonal Staff**

Park Attendant/fee Collector - 76  
General Utility Worker - 14  
Park Technician/fee Collector - 8  
Office Assistant - 2

## APPENDIX B

# RESULTS FROM THE NATIONAL SURVEY OF RECREATION AND THE ENVIRONMENT: NORTH CAROLINA AND THE NORTH CAROLINA MARKET REGION



## **NATIONAL SURVEY ON RECREATION AND THE ENVIRONMENT RESULTS BY REGION IN NORTH CAROLINA**

The following information about recreation participation in four regions of North Carolina has been excerpted from the report “North Carolina and the North Carolina Market Region”; a report submitted to the State of North Carolina, Division of Parks and Recreation by the Pioneering Research Group, Southern Research Station, USDA Forest Service, Athens, GA.

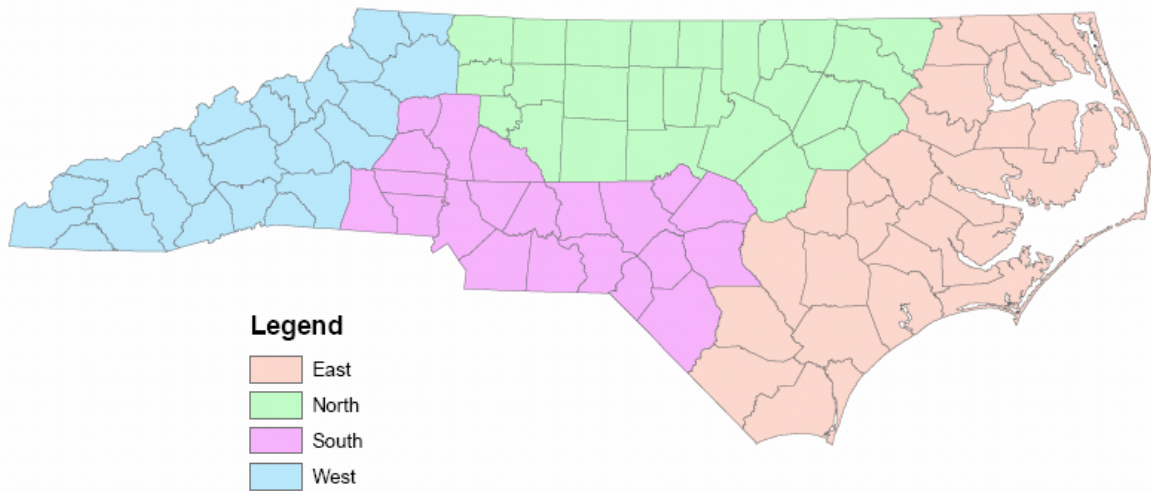
The 2002-2007 National Survey on Recreation and the Environment (NSRE) is the eighth in a series of national surveys started in 1960 by the Outdoor Recreation Resources Review Commission and now coordinated by the USDA Forest Service. The survey was accomplished by interviewing approximately 90,000 Americans aged 16 and over in random-digit-dialing telephone samplings. In 2007, the U.S. Forest Service prepared an analysis of responses to the NSRE for residents from North Carolina.

The NSRE has yielded just fewer than 3,000 total surveys for North Carolina during this period. The primary purpose of the NSRE and was to learn about approximately 85 specific outdoor recreation activities of people aged 16 and over in the United States. Questions from the NSRE broadly address areas such as outdoor recreation participation, demographics, household structure, lifestyles, environmental attitudes, natural resource values, constraints to participation, and attitudes toward management policies. For additional statewide results from the NSRE, please refer to Chapter 4 of this document.

### **Activity Groups and Activities for Residents of North Carolina by Region**

To provide information about regions within North Carolina, the state was divided into four regions; east, north, south, and west (Figure B-1). The regions are roughly defined by major interstate highways that traverse the state and are closely aligned with the four districts used to manage the North Carolina State Parks System. The East Region includes counties east of I-95. The West Region includes counties west of I-77. The North Region includes counties north of I-40 and between I-77 and I-40. The South Region includes counties south of I-40 and between I-77 and I-40.

Figure B-1 NSRE Regions in North Carolina



### Activity Groups and Activities for Residents in the East Region of North Carolina

The activities presented below are categorized by activity group for residents of the East Region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.

Table 3.19: East Region Resident Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a farm or agricultural setting	251	25.9	20.5	31.3	297	235	359
Visit a wilderness or primitive area	457	24.3	20.4	28.2	278	234	323
Drive off-road (any type)	412	17.9	14.2	21.6	205	163	248
Developed camping	457	17.4	13.9	20.9	199	159	240
Day hiking	457	17.3	13.8	20.8	198	158	238
Mountain biking	447	16.5	13.1	19.9	189	150	228
Hunting (any type)	486	11.9	9.0	14.8	136	103	170
Primitive camping	430	10.6	7.7	13.5	121	88	155
Big game hunting	348	8.4	5.5	11.3	96	63	129
Small Game hunting	348	7.8	5.0	10.6	89	57	121
Horseback riding on trails	419	5.1	3.0	7.2	58	34	83
Mountain climbing	78	4.0	0.0	8.3	46	0	95
Backpacking	457	3.9	2.1	5.7	45	24	65
Migratory bird hunting	420	3.8	2.0	5.6	44	23	64
Orienteering	57	3.0	0.0	7.4	34	0	85
Rock climbing	78	1.4	0.0	4.0	16	0	46

Table 3.19 presents the most popular nature-based land activity in the East region to be visiting a farm or agricultural setting (25.9%). The second most popular activity is visiting a wilderness or primitive area (24.3%). Around 17% of the population of the East region participates in driving off-road, developed camping, or day hiking, and 16.5% mountain bikes. Primitive camping is enjoyed by over 10% of the population. Almost 12% of the population hunts. Of the various kinds of hunting, big game hunting ranks highest in popularity (8.4%), followed by small game hunting (7.8%) and migratory bird hunting (3.8%). More than 5% of the population enjoys horseback riding on trails, while less than 5% goes mountain climbing, backpacking, orienteering, or rock climbing.

Table 3.20: East Region Resident Participation in Developed-Setting Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	447	77.9	74.1	81.7	893	849	936
Family gathering	425	74.2	70.0	78.4	850	802	898
Gardening or landscaping for pleasure	47	62.8	49.0	76.6	720	562	878
Driving for pleasure	400	51.9	47.0	56.8	595	539	651
Picnicking	457	44.5	39.9	49.1	510	457	563
Bicycling	458	35.2	30.8	39.6	403	353	454
Yard games, e.g., horseshoes	60	33.8	21.8	45.8	387	250	525
Attend outdoor concerts, plays, etc.	47	28.0	15.2	40.8	321	174	468
Horseback riding (any type)	429	7.0	4.6	9.4	80	53	108

Table 3.20 shows more than 75% of East region residents participate in walking for pleasure, while just under 75% have family gatherings in developed areas. Gardening or landscaping for pleasure is done by 62.8% of the population, and more than 50% enjoys driving for pleasure. Picnicking is enjoyed by 44.5% of the East region population. More than 35% goes bicycling, and 33.8% enjoys yard games like horseshoes. Less than 30% attends outdoor concerts and plays, and just 7.0% rides horses.

Table 3.21: East Region Resident Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a beach	463	47.0	42.5	51.5	539	487	590
Swimming in lakes, streams, etc.	469	38.5	34.1	42.9	441	391	492
Swimming in an outdoor pool	211	36.4	29.9	42.9	417	343	492
Saltwater fishing	420	32.1	27.6	36.6	368	316	419
Boating (any type)	470	29.4	25.3	33.5	337	290	384
Freshwater fishing	459	29.1	24.9	33.3	333	285	382
Motorboating	470	23.9	20.0	27.8	274	229	319
Warmwater fishing	410	22.9	18.8	27.0	262	215	309
Visit other waterside (besides beach)	410	17.4	13.7	21.1	199	157	242
Anadromous fishing	405	6.0	3.7	8.3	69	42	95
Coldwater fishing	446	5.4	3.3	7.5	62	38	86
Use personal watercraft	470	4.7	2.8	6.6	54	32	76
Canoeing	470	3.9	2.1	5.7	45	24	65
Rafting	470	3.7	2.0	5.4	42	23	62
Waterskiing	420	3.2	1.5	4.9	37	17	56
Sailing	447	3.1	1.5	4.7	36	17	54
Kayaking	470	2.7	1.2	4.2	31	14	48
Surfing	420	2.4	0.9	3.9	28	10	45
Rowing	446	2.2	0.8	3.6	25	9	41
Snorkeling	419	1.5	0.3	2.7	17	3	31
Scuba diving	419	0.5	0.0	1.2	6	0	14
Windsurfing	420	0.4	0.0	1.0	5	0	11



Exactly 47.0% of East region residents visit beaches, making this the most popular water-based activity in the region. Swimming in lakes and streams is the second most popular with 38.5%, followed by swimming in an outdoor pool with 36.4%. Many forms of fishing are enjoyed by East region residents including saltwater fishing (32.1%), freshwater fishing (29.1%), warmwater fishing (22.9%), anadromous fishing (6.0%), and coldwater fishing (5.4%). Boating of any type is done by 29.4% of the East region, while less than 5% use personal water craft. More than 17% of area residents visit other watersides besides beaches. Between 3-4% of East region residents participate in canoeing, rafting, waterskiing, and sailing, while less than 3% kayak. Surfing is done by 2.4%, and rowing by 2.2%. Only 1.5% of area residents snorkel, while less than 0.5% scuba dive or windsurf.

Table 3.22: East Region Resident Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	423	8.7	6.0	11.4	100	69	131
Downhill skiing	414	4.4	2.4	6.4	50	28	73
Sledding	105	2.5	0.0	5.5	29	0	63
Snowboarding	414	2.4	0.9	3.9	28	10	45
Cross country skiing	414	1.0	0.0	2.0	11	0	23
Snowmobiling	414	1.0	0.0	2.0	11	0	23
Ice skating outdoors	105	0.0	0.0	0.0	0	0	0
Snowshoeing	78	0.0	0.0	0.0	0	0	0
Ice fishing	107	0.0	0.0	0.0	0	0	0

Table 3.22 shows only 8.7% of the East region population participates in any type of snow/ice activity. Downhill skiing is the most popular with 4.4%, followed by sledding (2.5%), and snowboarding (2.4%). Cross country skiing and snowmobiling is enjoyed by 1.0% of area residents, and no one either snowshoes or ice fishes.

Table 3.23: East Region Resident Participation in Viewing/Learning Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	485	52.3	47.9	56.7	599	549	650
Sightseeing	378	51.9	46.9	56.9	595	537	652
Visit nature centers, etc.	456	44.0	39.4	48.6	504	452	557
Visit historic Sites	406	43.1	38.3	47.9	494	439	549
View/photograph other wildlife	485	42.8	38.4	47.2	490	440	541
View/photograph wildflowers, trees, etc.	484	38.9	34.6	43.2	446	397	495
View/photograph birds	484	35.1	30.8	39.4	402	353	452
View/photograph fish	485	29.9	25.8	34.0	343	296	390
Gather mushrooms, berries, etc.	433	23.1	19.1	27.1	265	219	311
Boat tours or excursions	106	22.7	14.7	30.7	260	168	352
Visit prehistoric/archeological sites	438	19.3	15.6	23.0	221	179	264
Caving	78	1.8	0.0	4.8	21	0	55

Table 3.23 illustrates the most popular viewing/learning activity is viewing/photographing natural scenery with 52.3% of East Region residents participating. Coming in a close second is sightseeing with 51.9%, followed by visiting nature centers with 44.0%. Roughly 43% of area residents visit historic sites or view/photograph other wildlife compared to 38.9% view/photograph wildflowers, trees, etc., 35.1% view/photograph birds and 29.9% view/photograph fish. Mushrooms, berries, and other food items are gathered by 23.1% of residents. Almost 23% of area residents go on boat tours or excursions, while less than 20% visit prehistoric or archeological sites. Less than 2% participate in caving.

Table 3.24: East Region Resident Participation in Individual Outdoor Sports Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Running or jogging	60	22.1	11.6	32.6	253	133	374
Inline skating	40	12.1	2.0	22.2	139	23	254
Tennis outdoors	62	10.5	2.9	18.1	120	33	207
Golf	61	9.8	2.3	17.3	112	26	198
Handball or racquetball outdoors	59	6.6	0.3	12.9	76	3	148

According to Table 3.24, the most popular individual outdoor sport is running or jogging, which is done by 22.1% of area residents. More than 12% inline skate, while 10.5% play tennis outdoors. Less than 10% of residents play golf. Handball or racquetball outdoors is played by 6.6% of area residents.

Table 3.25: East Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	48	36.4	22.8	50.0	417	261	573
Volleyball outdoors	62	9.5	2.2	16.8	109	25	193
Softball	64	4.6	0.0	9.7	53	0	111
Basketball outdoors	60	3.6	0.0	8.3	41	0	95
Soccer outdoors	61	2.3	0.0	6.1	26	0	70
Baseball	59	1.2	0.0	4.0	14	0	46
Football	57	1.2	0.0	4.0	14	0	46

According to Table 3.25, the most popular team outdoor sport is not an active sport, but rather attending an outdoor sporting event. Over 36% of area residents attend outdoor sports events. Just under 10% play outdoor volleyball, and less than 5% play softball. Basketball is played outdoors by 3.6% of area residents, and outdoor soccer is played by 2.3%. The least popular team outdoor sports are baseball and football, both having a participation rate of 1.2%.

Table 3.26: The 10 Most Popular Outdoor Recreation Activities for East Region Residents of NC

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	447	77.9	74.1	81.7	893	849	936
Family gathering	425	74.2	70.0	78.4	850	802	898
Gardening or landscaping for pleasure	47	62.8	49.0	76.6	720	562	878
View/photograph natural scenery	485	52.3	47.9	56.7	599	549	650
Driving for pleasure	400	51.9	47.0	56.8	595	539	651
Sightseeing	378	51.9	46.9	56.9	595	537	652
Visit a beach	463	47.0	42.5	51.5	539	487	590
Picnicking	457	44.5	39.9	49.1	510	457	563
Visit nature centers, etc.	456	44.0	39.4	48.6	504	452	557
Visit historic sites	406	43.1	38.3	47.9	494	439	549

Table 3.26 presents the 10 most popular outdoor recreation activities, with walking for pleasure being the most popular (77.9%). Just less than 75% of area residents have outdoor family gatherings. The third most popular activity is gardening/landscaping for pleasure, which is done by 62.8% of area residents. Around 50% of area residents participate in viewing/photographing natural scenery, driving for pleasure, or sightseeing, and less than 50% visit a beach. About 44% enjoy picnicking or visiting nature centers. Visiting historic sites is done by 43.1% of East region residents.

Table 3.27: The 10 Least Popular Outdoor Recreation Activities for East Region Residents of NC

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Rock climbing	78	1.4	0	4.0	16	0	46
Baseball	59	1.2	0	4.0	14	0	46
Football	57	1.2	0	4.0	14	0	46
Cross country skiing	414	1.0	0	2.0	11	0	23
Snowmobiling	414	1.0	0	2.0	11	0	23
Scuba diving	419	0.5	0	1.2	6	0	14
Windsurfing	420	0.4	0	1.0	5	0	11
Ice skating outdoors	105	0.0	0	0.0	0	0	0
Snowshoeing	78	0.0	0	0.0	0	0	0
Ice fishing	107	0.0	0	0.0	0	0	0

According to Table 3.27, the three least popular outdoor activities done by 0.0% of East region residents are ice skating outdoors, snowshoeing, and ice fishing. Both windsurfing and scuba diving are done by less than 0.5% of the population, while only 1.0% participates in snowmobiling or cross country skiing. More than 1.0% plays football or baseball, and 1.4% rock climbs.

#### Activity Groups and Activities for Residents in the North Region of North Carolina

The activities presented below are categorized by activity group for residents of the North Region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.

Table 3.28: North Region Resident Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a farm or agricultural setting	351	30.9	26.1	35.7	805	680	930
Visit a wilderness or primitive area	795	25.1	22.1	28.1	654	576	732
Day hiking	800	24.7	21.7	27.7	644	566	722
Developed camping	801	18.9	16.2	21.6	493	422	563
Drive off-road (any type)	742	16.1	13.5	18.7	420	352	487
Mountain biking	780	16.0	13.4	18.6	417	349	485
Primitive camping	750	11.1	8.9	13.3	289	232	347
Hunting (any type)	857	8.2	6.4	10.0	214	167	261
Backpacking	801	7.3	5.5	9.1	190	143	237
Horseback riding on trails	731	6.1	4.4	7.8	159	115	203
Small Game hunting	489	6.1	4.0	8.2	159	104	214
Big game hunting	610	5.2	3.4	7.0	136	89	182
Mountain climbing	113	5.1	1.0	9.2	133	26	240
Orienteering	67	5.0	0.0	10.2	130	0	266
Rock climbing	113	3.8	0.3	7.3	99	8	190
Migratory bird hunting	604	1.1	0.3	1.9	29	8	50

According to Table 3.28, the most popular nature-based land activity is visiting a farm or agricultural setting with 30.9% of area residents participating. The second most popular activity is visiting a wilderness or primitive area (25.1%). Just under 25% of area residents day hike, while roughly 16% drive off-road or mountain bike. Almost 19% camp in developed areas, while 11.1% camp in primitive areas. Hunting of any type is done by 8.2% of area residents, which is divided into small game hunting (6.1%), big game hunting (5.2%), and migratory bird hunting (1.1%). Backpacking is enjoyed by 7.3% of residents, and 6.1% ride horseback on trails. Around 5% mountain climb or orienteer, while less than 4% rock climb.

Table 3.29: North Region Resident Participation in Developed-Setting Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	656	83.7	80.9	86.5	2,181	2,108	2,254
Family gathering	614	74.4	70.9	77.9	1,939	1,848	2,030
Gardening or landscaping for pleasure	73	60.1	48.9	71.3	1,566	1,274	1,858
Driving for pleasure	709	55.1	51.4	58.8	1,436	1,339	1,532
Picnicking	801	45.5	42.1	48.9	1,186	1,097	1,274
Bicycling	678	32.2	28.7	35.7	839	748	930
Yard games, e.g., horseshoes	67	30.6	19.6	41.6	797	511	1,084
Attend outdoor concerts, plays, etc.	70	27.7	17.2	38.2	722	448	995
Horseback riding (any type)	629	6.9	4.9	8.9	180	128	232

Table 3.29 shows walking for pleasure as the most popular developed-setting land activity with 83.7% of area residents participating. Almost three-quarters of residents gather with family in developed settings. Roughly 60% enjoy gardening or landscaping for pleasure, while roughly 55% enjoy driving for pleasure. Picnicking is done by 45.5% of area residents, and 32.2% go bicycling. More than 30% play yard games like horseshoes. Activities like outdoor concerts and plays are attended by 27.7% of area residents, while less than 7% ride horseback.

Table 3.30: North Region Resident Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a beach	691	46.4	42.7	50.1	1,209	1,113	1,306
Swimming in lakes, streams, etc.	815	39.1	35.7	42.5	1,019	930	1,108
Swimming in an outdoor pool	283	38.3	32.6	44.0	998	850	1,147
Freshwater fishing	807	30.4	27.2	33.6	792	709	876
Boating (any type)	692	30.0	26.6	33.4	782	693	870
Warmwater fishing	584	29.2	25.5	32.9	761	665	857
Visit other waterside (besides beach)	600	26.4	22.9	29.9	688	597	779
Motorboating	692	19.5	16.5	22.5	508	430	586
Saltwater fishing	605	15.2	12.3	18.1	396	321	472
Coldwater fishing	665	9.0	6.8	11.2	235	177	292
Use personal watercraft	692	8.5	6.4	10.6	222	167	276
Canoeing	692	7.6	5.6	9.6	198	146	250
Rafting	814	6.9	5.2	8.6	180	136	224
Waterskiing	604	6.4	4.4	8.4	167	115	219
Snorkeling	604	5.4	3.6	7.2	141	94	188
Sailing	655	4.2	2.7	5.7	109	70	149
Kayaking	692	3.7	2.3	5.1	96	60	133
Anadromous fishing	594	2.7	1.4	4.0	70	36	104
Rowing	655	2.6	1.4	3.8	68	36	99
Surfing	604	1.7	0.7	2.7	44	18	70
Scuba diving	605	1.3	0.4	2.2	34	10	57
Windsurfing	604	0.3	0.0	0.7	8	0	18



Less than 50% of North region residents visit beaches, making this the most popular water-based activity. More than 39% swim in lakes and streams, while more than 38% swim in an outdoor pool. Fishing is a popular activity and can be divided into several categories which include freshwater fishing (30.4%), warmwater fishing (29.2%), saltwater fishing (15.2%), coldwater fishing (9.0%), and anadromous fishing (2.7%). Exactly 30.0% of North region residents participate in boating of any kind, with 19.5% motorboating, 8.5% using personal watercraft, 7.6% canoeing, 6.9% rafting, 4.2% sailing, 3.7% kayaking, and 2.6% rowing. More than a quarter of area residents visit other watersides besides beaches. Waterskiing is done by 6.4% of North region residents, and 5.4% snorkel. Less than 2% surf or scuba dive, and only 0.3% windsurf.

Table 3.31: North Region Resident Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	641	17.0	14.1	19.9	443	367	519
Sledding	164	6.8	2.9	10.7	177	76	279
Ice skating outdoors	164	4.2	1.1	7.3	109	29	190
Downhill skiing	621	4.0	2.5	5.5	104	65	143
Snowboarding	621	3.0	1.7	4.3	78	44	112
Snowmobiling	621	1.1	0.3	1.9	29	8	50
Cross country skiing	621	0.3	0.0	0.7	8	0	18
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	170	0.0	0.0	0.0	0	0	0

Exactly 17.0% of North region residents participate in any type of snow or ice activity, and the most popular is sledding with 6.8% participating. Around 4% of area residents ice skate outdoors, while snowmobiling is done by 1.1%. Downhill skiing is done by 4.0%, while 3.0% snowboard and 0.3% cross country ski. No one snowshoes or ice fishes in the North region.

Table 3.32: North Region Resident Participation in Viewing/Learning Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	731	56.6	53.0	60.2	1,475	1,381	1,569
Visit nature centers, etc.	678	53.9	50.1	57.7	1,405	1,306	1,504
Sightseeing	550	52.0	47.8	56.2	1,355	1,246	1,465
Visit historic Sites	594	44.3	40.3	48.3	1,154	1,050	1,259
View/photograph other wildlife	735	42.2	38.6	45.8	1,100	1,006	1,194
View/photograph wildflowers, trees, etc.	734	41.7	38.1	45.3	1,087	993	1,181
View/photograph birds	736	33.5	30.1	36.9	873	784	962
View/photograph fish	736	25.5	22.4	28.6	665	584	745
Gather mushrooms, berries, etc.	763	24.1	21.1	27.1	628	550	706
Boat tours or excursions	170	23.4	17.0	29.8	610	443	777
Visit prehistoric/archeological sites	630	17.3	14.3	20.3	451	373	529
Caving	113	3.0	0.0	6.1	78	0	159

According to Table 3.32, the most popular viewing/learning activity is viewing/photographing natural scenery (56.6%). Visiting nature centers is done by almost 54% of area residents, while 52.0% go sightseeing and more than 44% visit historic sites. Around 42% of residents view/photograph other wildlife or wildflowers and trees, while 33.5% view/photograph birds and 25.5% view/photograph fish. Mushrooms and berries are gathered by 24.1% of area residents. Almost a quarter go on boat tours or excursions. More than 17% visit prehistoric/ archeological sites, while only 3.0% go caving.

Table 3.33: North Region Resident Participation in Individual Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Running or jogging	67	27.4	16.7	38.1	714	435	993
Tennis outdoors	65	12.7	4.6	20.8	331	120	542
Golf	75	11.7	4.4	19.0	305	115	495
Inline skating	43	10.0	1.0	19.0	261	26	495
Handball or racquetball outdoors	71	1.6	0.0	4.5	42	0	117

Table 3.33 presents running or jogging (27.4%) as the most popular individual outdoor sport, followed by tennis (12.7%). Less than 12% of area residents golf, and exactly 10.0% inline skate. The least popular individual outdoor sport is handball or racquetball (1.6%).

Table 3.34: North Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	60	51.5	38.9	64.1	1,342	1,014	1,670
Softball	67	14.9	6.4	23.4	388	167	610
Soccer outdoors	75	12.4	4.9	19.9	323	128	519
Volleyball outdoors	65	10.4	3.0	17.8	271	78	464
Basketball outdoors	67	8.0	1.5	14.5	208	39	378
Baseball	71	4.3	0.0	9.0	112	0	235
Football	68	3.5	0.0	7.9	91	0	206

Table 3.34 presents the most popular team outdoor sports activity to be attending outdoor sports events with more than 51% of North region residents participating. Almost 15% of area residents play softball, and 12.4% play outdoors soccer. Outdoor volleyball is played by 10.4% of residents, while 8.0% play basketball outdoors. Less than 5% of North region residents play baseball (4.3%) or football (3.5%).

Table 3.35: The 10 Most Popular Outdoor Recreation Activities for North Region Residents of NC

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	656	83.7	80.9	86.5	2,181	2,108	2,254
Family gathering	614	74.4	70.9	77.9	1,939	1,848	2,030
Gardening or landscaping for pleasure	73	60.1	48.9	71.3	1,566	1,274	1,858
View/photograph natural scenery	731	56.6	53.0	60.2	1,475	1,381	1,569
Driving for pleasure	709	55.1	51.4	58.8	1,436	1,339	1,532
Visit nature centers, etc.	678	53.9	50.1	57.7	1,405	1,306	1,504
Sightseeing	550	52.0	47.8	56.2	1,355	1,246	1,465
Attend outdoor sports events	60	51.5	38.9	64.1	1,342	1,014	1,670
Visit a beach	691	46.4	42.7	50.1	1,209	1,113	1,306
Picnicking	801	45.5	42.1	48.9	1,186	1,097	1,274

According to Table 3.35, the most popular outdoor recreation activity for the North region of North Carolina is walking for pleasure with 83.7% of residents participating. The second most popular with almost 75% is gathering with family, followed by gardening or landscaping for pleasure (60.1%). More than 55% of area residents view/photograph natural scenery or drive for pleasure. Nature center are visited by 53.9%, and 52.0% of residents enjoy sightseeing. Just more than half of residents attend outdoor sports events, and less than half either visit beaches (46.4%) or picnic (45.5%).

Table 3.36: The 10 Least Popular Outdoor Recreation Activities for North Region Residents of NC

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Rowing	655	2.6	1.4	3.8	68	36	99
Surfing	604	1.7	0.7	2.7	44	18	70
Handball or racquetball outdoors	71	1.6	0.0	4.5	42	0	117
Scuba diving	605	1.3	0.4	2.2	34	10	57
Migratory bird hunting	604	1.1	0.3	1.9	29	8	50
Snowmobiling	621	1.1	0.3	1.9	29	8	50
Cross country skiing	621	0.3	0.0	0.7	8	0	18
Windsurfing	604	0.3	0.0	0.7	8	0	18
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	170	0.0	0.0	0.0	0	0	0

The least popular outdoor activities the North region are ice fishing and snowshoeing, possibly because of limited opportunities. Less than 0.5% of the population either windsurfs or skis cross country. Barely more than 1% snowmobile or hunt migratory birds or scuba dive. A small percentage of North area residents surf (1.7%) and still fewer play handball or racquetball outdoors (1.6%). There are roughly 68,000 area residents who row.

### Activity Groups and Activities for Residents in the South Region of North Carolina

The activities presented below are categorized by activity group for residents of the South region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.

Table 3.37: South Region Resident Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Day hiking	726	30.6	27.2	34.0	669	595	743
Visit a wilderness or primitive area	727	28.3	25.0	31.6	619	547	691
Visit a farm or agricultural setting	306	26.6	21.6	31.6	581	472	691
Drive off-road (any type)	682	20.5	17.5	23.5	448	383	514
Developed camping	726	19.6	16.7	22.5	428	365	492
Mountain biking	705	16.8	14.0	19.6	367	306	428
Primitive camping	685	13.9	11.3	16.5	304	247	361
Hunting (any type)	771	9.3	7.2	11.4	203	157	249
Backpacking	727	8.8	6.7	10.9	192	146	238
Horseback riding on trails	654	7.4	5.4	9.4	162	118	205
Mountain climbing	114	7.4	2.6	12.2	162	57	267
Big game hunting	586	7.1	5.0	9.2	155	109	201
Small Game hunting	407	5.9	3.6	8.2	129	79	179
Rock climbing	114	2.0	0.0	4.6	44	0	101
Migratory bird hunting	497	1.6	0.5	2.7	35	11	59
Orienteering	69	1.5	0.0	4.4	33	0	96

The most popular nature-based land activity for the South region is day hiking with 30.6% of residents participating. Visiting wilderness or primitive areas (28.3%) and visiting a farm or agricultural setting (26.6%) are the next most popular, followed by driving off-road (20.5%). Mountain biking is enjoyed by

almost 17% of area residents, and primitive camping, possibly part of a wilderness visit, is also popular (13.9%) although not as popular as developed camping (19.6%). Less than 10% do hunting of any type, with the highest participation in big game hunting (7.1%), then small game hunting (5.9%), and finally migratory bird hunting (1.6%). Roughly 9% enjoy backpacking, and 7.4% of residents enjoy horseback riding on trails or mountain climbing. Exactly 2.0% went rock climbing, and 1.5% went orienteering, making this the least popular activity.

Table 3.38: South Region Resident Participation in Developed-Setting Land Activities

<b>Activity</b>	<b>Sample size</b>	<b>Percent participating</b>	<b>95% confidence interval lower bound (%)</b>	<b>95% confidence interval upper bound (%)</b>	<b>Number of participants (1,000s)</b>	<b>95% confidence interval lower bound (1,000s)</b>	<b>95% confidence interval upper bound (1,000s)</b>
Walk for pleasure	541	81.7	78.4	85.0	1,786	1,714	1,858
Family gathering	504	75.0	71.2	78.8	1,640	1,556	1,723
Gardening or landscaping for pleasure	80	66.2	55.8	76.6	1,447	1,220	1,674
Driving for pleasure	658	54.5	50.7	58.3	1,191	1,108	1,274
Picnicking	727	49.4	45.8	53.0	1,080	1,001	1,159
Yard games, e.g., horseshoes	78	46.0	34.9	57.1	1,006	763	1,248
Attend outdoor concerts, plays, etc.	65	40.0	28.1	51.9	874	614	1,135
Bicycling	548	29.7	25.9	33.5	649	566	732
Horseback riding (any type)	496	8.6	6.1	11.1	188	133	243

Once again, the most popular develop-setting land activity is walking for pleasure (81.7%). Exactly 75.0% of South region enjoy family gatherings, and two-thirds garden or landscape for pleasure. More than half report driving for pleasure, while less than half go for picnics. Yard games like horseshoes are played by 46.0% of residents, and 40.0% attend outdoor concerts, plays, etc. Almost a third of the population bikes and less than 10% go horseback riding, making this the least participated in developed-setting activity.

Table 3.39: South Region Resident Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Swimming in an outdoor pool	231	48.0	41.6	54.4	1,049	909	1,189
Visit a beach	567	43.6	39.5	47.7	953	863	1,043
Swimming in lakes, streams, etc.	747	39.3	35.8	42.8	859	783	936
Boating (any type)	568	31.8	28.0	35.6	695	612	778
Freshwater fishing	726	29.5	26.2	32.8	645	573	717
Warmwater fishing	474	25.4	21.5	29.3	555	470	640
Visit other waterside (besides beach)	496	24.7	20.9	28.5	540	457	623
Motorboating	567	24.3	20.8	27.8	531	455	608
Saltwater fishing	495	13.4	10.4	16.4	293	227	359
Coldwater fishing	526	12.2	9.4	15.0	267	205	328
Rafting	747	10.2	8.0	12.4	223	175	271
Use personal watercraft	567	9.7	7.3	12.1	212	160	265
Canoeing	568	7.3	5.2	9.4	160	114	205
Waterskiing	498	7.1	4.8	9.4	155	105	205
Snorkeling	498	4.9	3.0	6.8	107	66	149
Sailing	541	4.1	2.4	5.8	90	52	127
Kayaking	568	2.9	1.5	4.3	63	33	94
Anadromous fishing	492	2.8	1.3	4.3	61	28	94
Surfing	498	2.1	0.8	3.4	46	17	74
Rowing	541	1.9	0.7	3.1	42	15	68
Windsurfing	498	1.1	0.2	2.0	24	4	44
Scuba diving	498	1.1	0.2	2.0	24	4	44



The most popular water-based activity is swimming in an outdoor pool with nearly half of South region residents participating. Nearly 40% swam in lakes, streams, etc. and 43.6% visited a beach. Boating is a popular activity with nearly a third of residents participating in some form including motorboating (24.3%), rafting (10.2%), personal watercraft (9.7%), canoeing (7.3%), sailing (4.1%), kayaking (2.9%), and rowing (1.9%). Another popular activity reliant on water is fishing, which is divided into the two most popular, freshwater (29.5%) and warmwater (25.4%), followed by saltwater (13.4%), coldwater (12.2%), and the least popular form of fishing, anadromous fishing (2.8%). Almost of quarter visited a waterside other than a beach last year, and 7.1% water-skied. Less than 5% snorkeled, and only 1.1% went scuba diving. Few residents surf with only 2.1% participating, and only 1.1% windsurf.

Table 3.40: South Region Resident Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	524	23.0	19.4	26.6	503	424	581
Downhill skiing	503	9.6	7.0	12.2	210	153	267
Sledding	157	8.8	4.4	13.2	192	96	289
Snowboarding	503	3.6	2.0	5.2	79	44	114
Snowmobiling	503	2.3	1.0	3.6	50	22	79
Cross country skiing	503	1.6	0.5	2.7	35	11	59
Ice skating outdoors	157	1.2	0.0	2.9	26	0	63
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	159	0.0	0.0	0.0	0	0	0

Roughly a quarter of South region residents participate in snow/ice activities, of which downhill skiing is the most popular (9.6%) followed by sledding (8.8%). Less than 4% snowboard and still fewer, 2.3%, snowmobile. Cross country skiing is done by 1.6% or area residents, and ice skating outdoors by 1.2%. No one snowshoes or ice fishes.

Table 3.41: South Region Resident Participation in Viewing/Learning Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	592	56.2	52.2	60.2	1,229	1,141	1,316
Visit nature centers, etc.	542	53.7	49.5	57.9	1,174	1,082	1,266
Sightseeing	451	50.2	45.6	54.8	1,097	997	1,198
View/photograph other wildlife	593	41.1	37.1	45.1	898	811	986
Visit historic Sites	496	40.6	36.3	44.9	888	794	982
View/photograph wildflowers, trees, etc.	593	38.6	34.7	42.5	844	759	929
View/photograph birds	593	31.5	27.8	35.2	689	608	769
View/photograph fish	591	26.5	22.9	30.1	579	501	658
Gather mushrooms, berries, etc.	701	25.5	22.3	28.7	557	487	627
Boat tours or excursions	158	20.1	13.9	26.3	439	304	575
Visit prehistoric/archeological sites	517	17.7	14.4	21.0	387	315	459
Caving	114	6.8	2.2	11.4	149	48	249

Again, the most popular activity in the viewing/learning category is view/photograph natural scenery with 56.2% participating. More than 50% of South region residents went to visit a nature center last year or went sightseeing. Of the other view/photograph activities, viewing /photographing other wildlife was the most popular (41.1%), then wildflowers, trees, etc. (38.6%), then birds (31.5), and lastly fish (26.5%). More than 40% visited a historic site, and less than 20% visited a prehistoric/archeological site. More than a quarter of residents gathered mushrooms, berries, etc., and a fifth went on a boat tour or excursion. Only 149,000 (6.8%) entered a cave last year, the highest of all four regions.

Table 3.42: South Region Resident Participation in Individual Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Running or jogging	78	36.3	25.6	47.0	794	560	1,027
Tennis outdoors	78	17.8	9.3	26.3	389	203	575
Golf	77	14.0	6.2	21.8	306	136	477
Inline skating	47	9.5	1.1	17.9	208	24	391
Handball or racquetball outdoors	75	3.9	0.0	8.3	85	0	181

By far the most popular individual sport is running or jogging with 36.3% of the population participating. The next most popular individual sport activity is tennis outdoors (17.8%) followed by golf (14.0%). Inline skating is done by a tenth of the South region population, while less than 4% play handball or racquetball outdoors.

Table 3.43: South Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	66	43.0	31.1	54.9	940	680	1,200
Basketball outdoors	78	11.9	4.7	19.1	260	103	418
Soccer outdoors	77	11.7	4.5	18.9	256	98	413
Volleyball outdoors	78	10.5	3.7	17.3	230	81	378
Football	70	8.3	1.8	14.8	181	39	324
Softball	76	5.1	0.2	10.0	111	4	219
Baseball	75	3.1	0.0	7.0	68	0	153

Table 3.43 presents the most popular team outdoor sport activity to be attending outdoor sports events (43.0%). Less than 12% of area residents play soccer or basketball outdoors, while more than 10% play

volleyball outdoors. Residents who play football constitute 8.3% of the population, followed by softball (5.1%) and baseball (3.1%).

Table 3.44: The 10 Most Popular Outdoor Recreation Activities for the South Region of NC

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	541	81.7	78.4	85.0	1,786	1,714	1,858
Family gathering	504	75.0	71.2	78.8	1,640	1,556	1,723
Gardening or landscaping for pleasure	80	66.2	55.8	76.6	1,447	1,220	1,674
View/photograph natural scenery	592	56.2	52.2	60.2	1,229	1,141	1,316
Driving for pleasure	658	54.5	50.7	58.3	1,191	1,108	1,274
Visit nature centers, etc.	542	53.7	49.5	57.9	1,174	1,082	1,266
Sightseeing	451	50.2	45.6	54.8	1,097	997	1,198
Picnicking	727	49.4	45.8	53.0	1,080	1,001	1,159
Swimming in an outdoor pool	231	48.0	41.6	54.4	1,049	909	1,189
Yard games, e.g., horseshoes	78	46.0	34.9	57.1	1,006	763	1,248

Once again, the most popular outdoor recreation activity is walking for pleasure with more than four-fifths of residents walking. The next most popular is family gatherings (75.0%) followed by gardening or landscaping for pleasure (66.2%). More than half of area residents view/photograph natural scenery or drive for pleasure, or visit nature centers. Almost half enjoy sightseeing, while just under half go on picnics or swim in outdoor pools. Finally, 46.0% of South region residents play yard games like horseshoes.

Table 3.45: The 10 Least Popular Outdoor Recreation Activities for the South Region of NC

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Rock climbing	114	2.0	0.0	4.6	44	0	101
Rowing	541	1.9	0.7	3.1	42	15	68
Migratory bird hunting	497	1.6	0.5	2.7	35	11	59
Cross country skiing	503	1.6	0.5	2.7	35	11	59
Orienteering	69	1.5	0.0	4.4	33	0	96
Ice skating outdoors	157	1.2	0.0	2.9	26	0	63
Windsurfing	498	1.1	0.2	2.0	24	4	44
Scuba diving	498	1.1	0.2	2.0	24	4	44
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	159	0.0	0.0	0.0	0	0	0

All of the least popular outdoor activities have a participation rate of 2.0% or lower. Those with 2% participating include rock climbing and rowing, while those around 1.5% include migratory bird hunting, cross country skiing, and orienteering. Around 1% of South region residents windsurf, ice skate outdoors, or scuba dive. No one in the South region reported snowshoeing or ice fishing.

#### Activity Groups and Activities for Residents in the West Region of North Carolina

The activities presented below are categorized by activity group for residents of the West region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.

Table 3.46: West Region Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Day hiking	674	46.8	43.0	50.6	395	363	427
Visit a wilderness or primitive area	673	44.9	41.1	48.7	379	347	411
Drive off-road (any type)	638	31.4	27.8	35.0	265	235	295
Visit a farm or agricultural setting	216	27.7	21.7	33.7	234	183	284
Developed camping	675	27.2	23.8	30.6	230	201	258
Primitive camping	649	24.9	21.6	28.2	210	182	238
Backpacking	674	13.4	10.8	16.0	113	91	135
Mountain biking	660	12.7	10.2	15.2	107	86	128
Hunting (any type)	700	12.3	9.9	14.7	104	84	124
Horseback riding on trails	628	10.9	8.5	13.3	92	72	112
Big game hunting	573	9.8	7.4	12.2	83	62	103
Small Game hunting	295	6.5	3.7	9.3	55	31	78
Mountain climbing	66	2.6	0.0	6.4	22	0	54
Migratory bird hunting	356	0.7	0.0	1.6	6	0	14
Orienteering	41	0.0	0.0	0.0	0	0	0
Rock climbing	66	0.0	0.0	0.0	0	0	0

Table 3.46 presents the most popular form of nature-based land activity to be day hiking (46.8%). Almost 45% of West region residents visit wilderness or primitive areas. Nearly a third drive off-road, while roughly a quarter of residents visit farms or agricultural settings, camp in a developed area, or camp in a primitive area. Backpacking and mountain biking are done by 13% of area residents, and horseback riding by 11%. Hunting of any type is done by 12.3%, which is divided into big game hunting (9.8%), small game hunting (6.5%), and migratory bird hunting (0.7%). Less than 3% mountain climb. The two least popular nature-based land activities, with no one reporting to do either last year, are orienteering and rock climbing.

Table 3.47: West Region Resident Participation in Developed-Setting Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Gardening or landscaping for pleasure	33	88.0	76.9	99.1	743	649	836
Walk for pleasure	382	84.1	80.4	87.8	710	679	741
Family gathering	358	75.1	70.6	79.6	634	596	672
Driving for pleasure	624	73.8	70.3	77.3	623	593	652
Picnicking	674	63.3	59.7	66.9	534	504	565
Yard games, e.g., horseshoes	38	55.6	39.8	71.4	469	336	603
Bicycling	396	24.3	20.1	28.5	205	170	241
Attend outdoor concerts, plays, etc.	31	21.9	7.3	36.5	185	62	308
Horseback riding (any type)	364	9.6	6.6	12.6	81	56	106

The most popular activity in developed settings in the West region is gardening or landscaping for pleasure with 88.0% participation. This is the only region where walking for pleasure was not the most popular. It was second with 84.1% of residents participating. Three-quarters report having family gatherings, and almost that number drive for pleasure. Almost two-thirds enjoy picnics and more than half play yard games. Roughly 25% go bicycling and less than 10% go horseback riding, the least popular activity in this group. Almost 22% of West region residents attend outdoor concerts, plays, etc.

Table 3.48: West Region Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Swimming in lakes, streams, etc.	680	42.6	38.9	46.3	360	328	391
Freshwater fishing	674	35.4	31.8	39.0	299	268	329
Visit a beach	397	35.4	30.7	40.1	299	259	338
Boating (any type)	402	34.7	30.0	39.4	293	253	333
Swimming in an outdoor pool	162	34.1	26.8	41.4	288	226	349
Visit other waterside (besides beach)	349	28.0	23.3	32.7	236	197	276
Motorboating	402	25.3	21.1	29.5	214	178	249
Coldwater fishing	381	25.2	20.8	29.6	213	176	250
Warmwater fishing	341	22.3	17.9	26.7	188	151	225
Rafting	679	16.6	13.8	19.4	140	116	164
Waterskiing	355	8.8	5.9	11.7	74	50	99
Saltwater fishing	356	8.4	5.5	11.3	71	46	95
Use personal watercraft	402	8.0	5.3	10.7	68	45	90
Canoeing	402	7.2	4.7	9.7	61	40	82
Rowing	381	3.9	2.0	5.8	33	17	49
Sailing	381	2.6	1.0	4.2	22	8	35
Snorkeling	356	2.4	0.8	4.0	20	7	34
Kayaking	402	2.3	0.8	3.8	19	7	32
Surfing	355	1.0	0.0	2.0	8	0	17
Anadromous fishing	353	0.8	0.0	1.7	7	0	14
Scuba diving	355	0.8	0.0	1.7	7	0	14
Windsurfing	355	0.0	0.0	0.0	0	0	0



According to Table 3.48, the most popular water-based activity in the West region is swimming in lakes, streams, etc. with 42.6% of residents participating. This is the only region in which this was the most popular activity. The second most popular activity is shared by freshwater fishing and visiting a beach, both with 35.4%. Other forms of fishing residents participate in are coldwater fishing (25.2%), warmwater fishing (22.3%), saltwater fishing (8.4%), and anadromous fishing (0.8%). Boating (34.7%) is a popular water-based activity, which can be divided into motorboating (25.3%), rafting (16.6%), canoeing (7.2%), rowing (3.9%), sailing (2.6%), and kayaking (2.3%). More than a third of West region residents swam in an outdoor pool, while more than a quarter of residents visited a water side other than a beach. Less than 10% went waterskiing and only 8.0% used a personal watercraft. Snorkeling was done by 2.4% of residents, while less than 1% went scuba diving. Exactly 1.0% went surfing, while no one reported windsurfing.

Table 3.49: West Region Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	375	22.4	18.2	26.6	189	154	225
Sledding	92	19.0	11.0	27.0	160	93	228
Downhill skiing	361	6.6	4.0	9.2	56	34	78
Snowboarding	361	3.5	1.6	5.4	30	14	46
Snowmobiling	361	2.0	0.6	3.4	17	5	29
Cross country skiing	361	1.4	0.2	2.6	12	2	22
Snowshoeing	66	1.3	0.0	4.0	11	0	34
Ice skating outdoors	92	0.4	0.0	1.7	3	0	14
Ice fishing	91	0.0	0.0	0.0	0	0	0

Nearly 25% of West Region residents participate in snow/ice activities of any kind, the most popular being sledding (19.0%). The next most popular activity is downhill skiing (6.6%) followed by snowboarding (3.5%). Exactly 2.0% snowmobile and more than 1% cross country ski or snowshoe. The two least popular snow and ice-based activities are ice skating outdoors (0.4%) and ice fishing (0.0%).

Table 3.50: West Region Resident Participation in Viewing/Learning Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	420	66.5	62.0	71.0	561	523	599
Sightseeing	325	63.0	57.8	68.2	532	488	576
Visit nature centers, etc.	396	60.9	56.1	65.7	514	473	555
View/photograph other wildlife	420	49.5	44.7	54.3	418	377	458
View/photograph wildflowers, trees, etc.	421	46.8	42.0	51.6	395	354	436
Visit historic Sites	355	45.3	40.1	50.5	382	338	426
View/photograph birds	422	38.6	34.0	43.2	326	287	365
Gather mushrooms, berries, etc.	653	34.1	30.5	37.7	288	257	318
View/photograph fish	422	24.8	20.7	28.9	209	175	244
Visit prehistoric/archeological sites	375	18.9	14.9	22.9	160	126	193
Boat tours or excursions	91	18.3	10.4	26.2	154	88	221
Caving	66	5.3	0.0	10.7	45	0	90

Table 3.50 presents the most popular viewing/learning activity to be view/photograph natural scenery with nearly two-thirds of West region residents participating. The second most popular activity is sightseeing (63.0%), followed by visiting nature centers, etc. (60.9%). Just under 50% of residents view/photograph other wildlife, 46.8% view/photograph wildflowers, trees, etc., 38.6% view/photograph birds, and 24.8% view/photograph fish. More than 45% of the population visits historic sites, while less than 20% visit prehistoric/archeological sites or go on boat tours or excursions. More than a third of residents gather mushroom, berries, etc. The least popular viewing/learning activity is caving (5.3%).

Table 3.51: West Region Resident Participation in Individual Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Golf	42	29.6	15.8	43.4	250	133	366
Tennis outdoors	42	21.6	9.2	34.0	182	78	287
Running or jogging	38	20.8	7.9	33.7	176	67	284
Inline skating	26	3.5	0.0	10.6	30	0	89
Handball or racquetball outdoors	43	0.0	0.0	0.0	0	0	0

The most popular individual outdoor sport is golf (29.6%). Tennis outdoors (21.6%) is the next most popular, followed by running or jogging (20.8%). Less than 4% inline skates, and no one reports playing handball or racquetball outdoors.

Table 3.52: West Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	31	74.8	59.5	90.1	631	502	760
Basketball outdoors	38	9.7	0.3	19.1	82	3	161
Softball	45	8.0	0.1	15.9	68	1	134
Baseball	43	5.6	0.0	12.5	47	0	106
Football	41	2.0	0.0	6.3	17	0	53
Soccer outdoors	42	1.8	0.0	5.8	15	0	49
Volleyball outdoors	42	0.0	0.0	0.0	0	0	0

Nearly 75% of West region residents attend outdoor sports events, making it the most popular team outdoor activity. Less than 10% plays basketball outdoors, and exactly 8.0% plays softball. Baseball is enjoyed by 5.6% and football by 2.0%. Less than 2% plays soccer outdoors, while no one reported playing volleyball outdoors.

Table 3.53: The 10 Most Popular Outdoor Recreation Activities for the West Region of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Gardening or landscaping for pleasure	33	88.0	76.9	99.1	743	649	836
Walk for pleasure	382	84.1	80.4	87.8	710	679	741
Family gathering	358	75.1	70.6	79.6	634	596	672
Attend outdoor sports events	31	74.8	59.5	90.1	631	502	760
Driving for pleasure	624	73.8	70.3	77.3	623	593	652
View/photograph natural scenery	420	66.5	62.0	71.0	561	523	599
Picnicking	674	63.3	59.7	66.9	534	504	565

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Sightseeing	325	63.0	57.8	68.2	532	488	576
Visit nature centers, etc.	396	60.9	56.1	65.7	514	473	555
Yard games, e.g., horseshoes	38	55.6	39.8	71.4	469	336	603

Table 3.53 presents the 10 most popular outdoor recreation activities for the West region with the most popular being gardening or landscaping for pleasure with nearly 90% of the population participating. The second most popular is walking for pleasure (84.1%), followed by family gathering (75.1%). Less than 75% attends outdoor sports events or drives for pleasure. Almost two-thirds views/photographs scenery, and 63% picnics or goes sightseeing. More than 60% of the population visits nature centers, etc., and yard games are enjoyed by 55.6%.

Table 3.54: The 10 Least Popular Outdoor Recreation Activities for the West Region of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Anadromous fishing	353	0.8	0	1.7	7	0	14
Scuba diving	355	0.8	0	1.7	7	0	14
Migratory bird hunting	356	0.7	0	1.6	6	0	14
Ice skating outdoors	92	0.4	0	1.7	3	0	14
Orienteering	41	0.0	0	0.0	0	0	0
Rock climbing	66	0.0	0	0.0	0	0	0
Ice fishing	91	0.0	0	0.0	0	0	0
Windsurfing	355	0.0	0	0.0	0	0	0
Handball or racquetball outdoors	43	0.0	0	0.0	0	0	0
Volleyball outdoors	42	0.0	0	0.0	0	0	0

Table 3.54 shows the least popular outdoor activities, all with less than 1% of the population participating. Just less than 1% goes anadromous fishing (0.8%), scuba dives (0.8%), or hunts migratory birds (0.7%). Only 0.4% ice skates outdoors. Exactly 0.0% of West region residents orienteer, rock climb, ice fish, windsurf, play handball or racquetball outdoors, or play volleyball outdoors.

### Summary

North Carolina and regional residential outdoor recreation participation is examined in-depth this chapter. North Carolina is broken into four interstate regions (East, West, North, South), and is grouped into the market region, which includes North Carolina, South Carolina, Tennessee and Virginia. Market region information can be used to support state data, as an increase (or decrease) in participation for an activity in the region may suggest movement into (or away from) North Carolina.

Overall, North Carolina and market region recreation activities are similar, as are the interstate regions. The most popular nature-based activity for both the state and market region is visiting a wilderness or primitive area (29.8%, 31.3% respectively), followed closely by day hiking (29.7%). The interstate regions vary as to the most popular activities. Other popular activities, including the aforementioned, are driving off-road, and visit a farm or agricultural setting. Hunting of any type is more popular in the region (12.1%) than in the state (9.9%).

Developed-setting land activities are very similar for all regions. The three most popular activities for the interstate regions, market region, and state are walking for pleasure, family gatherings, and gardening/landscaping for pleasure. More than 80% of residents in every region walk for pleasure, except the East region (77.9%). Between 65.4% and 84.1% garden or landscape for pleasure, and between 74.1% and 75.1% have family gatherings. The least popular developed-setting land activity is horseback riding of any type.

Water-based activities are popular for each region, although there are some major differences. For instance, the West region is the only region that the most popular water-based activity is swimming in lakes, streams, etc., followed by freshwater fishing. For the other regions, state as a whole, and the market region, the most popular activities are visiting beaches (41.1%-47.0%), swimming in an outdoor pool (36.4%-40.7%), and swimming in lakes, streams, etc. (38.5%-48.0%). The least popular activities are windsurfing (0.0%-1.1%) and scuba diving (0.5%-1.3%).

Snow and ice activities are the least popular overall outdoor recreation activities.

Participation ranges from 8.7% in the East region to 23.0% in the South region. The three most popular activities are sledding (2.5%-19.0%), downhill skiing (4.0%-9.6%), and snowboarding (2.4%-3.6%). There were no reports of ice fishing in the state of North Carolina, although in the market region has 0.1% of residents participating.

The three most popular viewing/learning activities are view/photograph natural scenery (52.3%-66.5%), visit nature centers, etc. (44.0%-60.9%), and sightseeing (50.2%-63.0%). For all regions, the whole state, and the market region, the least popular activity is caving (1.8%-6.8%).

The most popular outdoor individual sports activity is running or jogging (22.1%-36.3%), except in the West region, where the most popular activity is golf (29.6%). The most popular team sports activity for

all regions, the state, and market region is overwhelmingly attending outdoor sports events (36.4%-74.8%). The least popular team sports activities are baseball (1.2%-5.3%) and football (1.2%-8.3%). Once again, the West region is different from the other regions as the least popular activities are soccer (1.8%) and volleyball outdoors (0.0%).

The overall most popular activities are walking for pleasure, family gatherings, and gardening or landscaping for pleasure. The overall least popular activities are ice fishing and snowshoeing.

### **Implications**

- Walking for pleasure is the most popular outdoor recreational activity in the state and region. Over half of state and regional residents participate in viewing or photographing natural scenery, visiting a nature center, driving for pleasure or sightseeing. Therefore, it is important that residents receive information about pedestrian friendly areas as well as information regarding access to these areas.
- Many of the state's most popular activities involve few specialized skills or equipment. These include walking for pleasure (82%), attending family gatherings (74.6%), gardening or landscaping (65.4%), driving for pleasure (58.2%), and viewing and photographing natural scenery (57.0%).
- As gas prices continue to rise, more residents may choose to recreate at areas that are closer to home. This could decrease out-of-state visitors, but could increase park use by North Carolina residents. Information on the location and access of local recreation opportunities could increase user rates.
- Emphasis on a variety of opportunities such as interpretation, biking, dining, walking, swimming, and lodging at a specific location may encourage visitation.





## APPENDIX C

### 2008 SURVEY OF RECREATIONAL RESOURCE NEEDS – ADDITIONAL ANALYSIS –



# **ADDITIONAL ANALYSIS OF THE 2008 SURVEY OF RECREATIONAL RESOURCE NEEDS**

## **INTRODUCTION**

This appendix contains additional analysis of the DPR Survey of Recreational Resource Needs conducted in 2008. The study and the primary results are contained in Chapter 4 of this document. The survey analysis cross-references, where appropriate, the 2007 National Survey on Recreation and Environment (NSRE) performed periodically by the U.S. Forest Service. The primary results of the NSRE are also presented in Chapter 4 and Appendix B.

## **FACILITY THEMES**

### **Camping Preferences**

Camping in state parks is a very popular pastime for many North Carolinians. According to the survey, tent/trailer camping *without* electrical hook-ups was the most popular camping option. Almost half (47.9%) of the survey respondents indicated they would use such a campsite. The next most popular camping option was back-country primitive campsites, with 38.9% indicating they would use such a facility and 32.3% of survey respondents noting that they *might* use a back-country primitive campsite. Some of the comments received in the survey for this facility type desired more natural campsites, more space between campsites, and separation from those who RV camp or use generators – citing the noise and modern conveniences as the very things they wanted to escape from by camping in a state park.

However, not all state park campers want to rough-it. Tent and trailer sites *with* electrical hook-ups was also a popular option, with 35.2% of those surveyed indicating they would use this facility type. Although many survey comments were received from RV enthusiasts requesting a greater number of improved facilities, RV camping was the least popular camping activity with only 22.7% of those surveyed stating they would use a RV/trailer facility with hook ups. Survey comments from the RV enthusiasts noted that campsites in state parks did not compare well with neighboring states that often had larger and hardened camp sites, more electrical hook-ups with either a waste tank dumping station or direct sewer hook-ups.

Group camping was the camping option where the highest percentage (44.7%) of respondents stated they *might* use a group camp facility, although nearly one-third (30.3%) stated they would group camp.

Cabins, either rustic (merely an enclosed living space) or improved (with a kitchen, heat, and restroom), were camping options that survey participants showed interest in having in state parks. More respondents indicated that they would use an improved cabin (45%) versus a rustic cabin (37.2%). With relatively few cabins currently in the state park system, the division should consider the pros and cons of adding new cabins to its parks.

The 2007 NSRE found that one fifth of North Carolinians (20.5%) participated in developed camping while 14.5% enjoyed primitive camping in the previous year.

Many survey respondents gave written comments regarding camping. The most prevalent camping complaint was that the state lacked a campground reservation system. Many explained their frustration with our current reservation system, particularly the uncertainty one faces in trying to plan a trip without knowing if a campsite will be available for use by the time they arrive at the park. The division's unveiling of its new on-line reservation system in 2009 appears to be a service that is timely and much appreciated.

The second most common complaint with camping regarded the park system's gate locking procedure at campgrounds. Several people commented that locking the gates restricts their freedom to enter and leave when they wish – be it for shopping, eating at restaurants, purchasing supplies, or their desire to arrive at the campsite later at night. Park staff lock campground gates as a means of deterring property theft, excluding non-campers from the campground at night, and retaining the ability to properly manage the campground during the night when fewer park rangers are available. In the past, the division experimented with various campground access policies in the past and has found that maintaining the ability to manage the campground's use and safety supersedes off-hour convenient access.

### **Picnicking**

The survey found that enjoying a meal in the great outdoors is the third most popular activity in state parks. 68.4% of those surveyed stated a desire to use a picnic table with a grill, while 53.9% would use a picnic shelter. The division's survey findings match well with the 2007 NSRE which states that 74.6% of North Carolinians attend outdoor family gatherings and 50.0% enjoy picnicking.

### **Play Areas**

Although playgrounds are not typically a component of state parks, 29.8% of respondents indicated a demand for this facility type. However, a greater majority of survey participants (41.8%) did not feel that playgrounds are an appropriate amenity in a state park.

Open play areas, which can be utilized for a variety of uses, received mixed reviews in the survey. The greatest percentage of those surveyed said they might use an open play area (35.8%), while a significant percentage of people noted they would use (32.4%) and would not use (31.8%) an open play area.

### **Hiking and Nature Trails**

By far, the most preferable activity to do in a North Carolina state park is to walk for pleasure, be it on a hiking trail or a nature trail. Four out five people surveyed (79.5%) would use a hiking trail and nearly three out of four people (74.1%) surveyed would use a nature trail. This data matches well with the 2007 NRSE, which finds walking for pleasure to be an outdoor recreation activity performed by 82% of North Carolina residents and 83% of all US residents.

Survey respondents truly desired more hiking opportunities, as hiking trails were selected as the second, third, and fourth highest priority for new park facilities. Hiking would have been the highest priority

facility (14.4% of those surveyed chose hiking trails as their highest priority), had it not been for the unusually high survey response rate from the mountain biking community (19.9% chose mountain biking as highest facility priority).

Most of the hiking related comments in the survey related to the need for more hiking trails. Others noted that more wilderness hiking (longer trails in pristine areas) opportunities were desired. The popularity of back-country camping (38.9% would back-country camp) ties in well with the desire for long, wilderness hiking opportunities. Connectivity to the larger network of trails and greenways in coordination with other local, state, and federal agencies was a common request in the survey. Several people expressed their support for the Mountains-To-Sea Trail.

### **Equestrian Trails and Facilities**

Although many people from the equestrian community participated in the survey, equestrian trails were rated in the survey as the very least popular facility type in North Carolina state parks, with 65.1% of survey participants stating that they would not use equestrian-only trails. However, 20.9% of survey respondents stated they would use equestrian trails. According to the 2007 NSRE, only 7.8% of North Carolinians engaged in horseback riding during the previous 12 months.

Equestrians expressed concern for the limited number of opportunities to recreate in state parks and the lack of appropriate facilities. They noted that often the facilities they desire such as: appropriately-sized horse trailer parking; campsites with or without electrical hook-ups; and stables/barns/hitching posts are needed or need improvement. Equestrians noted the large revenue and economic impact that the state is missing out on by not having adequate horse riding facilities; many equestrians detailed how neighboring states are much more accommodating and that North Carolina residents are forced to spend their money out-of-state to have enjoyable horseback riding experiences in state parks. Some equestrians noted that existing horse trails are in need of maintenance; while others noted that some equestrian clubs (such as the Blue Ridge Horsemen's Association) are willing to help improve and maintain trails.

The majority of park-specific comments regarding equestrian facilities were directed to South Mountain State Park where several respondents noted that the equestrian facilities at this park need improvement.

### **Mountain Biking Trails**

The largest number of responses on the survey from a recreation-specific user group was from mountain bikers. The survey found that while although only 39.3% people surveyed would ride mountain bikes in state parks, mountain bike trails were by far the most requested facility-type – with 19.9% of people surveyed choosing this facility as their highest priority to develop in state parks. The 2007 NSRE found that within the previous year, 15.7% of North Carolinians participated in mountain biking.

The comments on the survey from the mountain biking community were numerous. The major themes emerging from the comments were: more mountain biking trails are needed – particularly in areas near centers of population; the mountain biking community is sizeable and organized; mountain biking can be low impact use on properly designed trails; single-track trails on natural surfaces with a wide variety of trail types, difficulties, and length are preferred; and there are many groups such as: the Tarheel

Trailblazers, Brushy Mountain Cyclists, Greensboro Fat Tire Society, Triangle Off-Road Cyclists, International Mountain Biking Association, and the Southern Off-Road Bicycle Association are available and willing to contribute financially and also through volunteer work to help design, build, and maintain mountain bike trails.

The vast majority of park-specific comments received from this user group were directed to William B. Umstead State Park where mountain bikers were unhappy with the wide gravel road experience and noted that new single-track trails (or conversion of existing trails) at the park were desired. Several mountain bikers applauded the division's collaboration with the mountain biking community on the design and construction of the single-track trail network at Lake Norman State Park.

### **Multi-use Trails**

According to the survey, multi-use trails were a popular facility-type, with 61.2% of those surveyed indicating that they would use a multi-use trail. 30.9% said they might use a multi-use trail, while only 7.9% noted they would not. Multi-use trails are popular with most park users because this facility type allows the greatest number and widest range of user groups to recreate.

Although the survey comments noted that there is a demand for multi-use trails in North Carolina state parks, many people expressed concern. Some hikers did not appreciate mountain bikes whizzing by them on trail, as well as other users did not enjoy encountering horse manure in their hiking or biking experience. Several equestrians noted they did not enjoy sharing the trail with mountain bikers. Many multi-use trail users noted that better education and signage informing multi-use trail etiquette were necessary.

### **Rock Climbing**

Although many members of the rock climbing community participated in the survey, more people noted they would not use a rock climbing facility (36.3%) than those who would (30.7%). According to the 2007 NSRE, only 2.3% of NC residents participated in rock climbing in the previous 12-month period.

Many rock climbers provided comments on the survey. The majority of rock climbers who offered comments expressed a need for more rock climbing opportunities to utilize the outstanding climbing features in the state. Many described the low impact use of the sport and conservation ethics of many climbers, as well as the local climbing groups such as: the Carolina Climbers Coalition and Access Fund who are willing to partner with the state and volunteer to increase climbing opportunities in state parks.

Of particular note, many of the climbers expressed a desire to allow climbing at both Grandfather Mountain and Chimney Rock State Park. Some climbers hoped that state parks would not require the use of commercial guides to be able to climb in state parks.

### **Paddle Trails**

Over half of the people surveyed (55.5%) indicated they would use a paddle trail and river access facility. Of the comments received from the survey, most people noted that they desired more paddling opportunities with long multi-day trails and camping close to or on the river (platform camping). The need for more river access areas with improved facilities and signage was also noted.

According to the 2007 NSRE, during the previous year, 6.7% of NC residents went canoeing, while 3.1% went kayaking.

### **Swimming and Beach Areas**

Approximately half of the survey respondents indicated that they would use a beach (53.4%) and swimming area (48.4%). According to the 2007 NSRE, 39.7% of NC residents swam in lakes, streams and other large water bodies during the previous year. The 2007 NSRE also found that visiting a beach was one of the top ten favorite activities of North Carolinians, with 44.2% visiting beach during the last 12-months.

Survey respondents expressed the need for more swimming opportunities, including larger swim areas. Nearly all users groups including primitive campers, RV campers, and equestrians desired more beach camping opportunities. Several respondents desired upgrades of campsites at the beach to include electrical hook-ups.

### **Boating and Marina Use**

The survey found that a marina was the third least desired facility in state parks with only 17.6% of respondents expressing an interest in marinas. 52.2% of survey respondents would not use a marina in a state park. A boat ramp/dock facility was more popular than a marina, with 30.2% of those surveyed indicated they would use such a facility.

Boating of any type and motor boating are both relatively popular in North Carolina, the 2007 NSRE found the percentage of North Carolina residents participating during the previous year to be 31% and 22.5%, respectively.

### **Fishing Pier/Shoreline Fishing**

30.8% of those surveyed said they would use a fishing pier, while 35.8% indicated they might use a fishing pier. A few survey respondents indicated their desire for fishing opportunities in state parks, including more shoreline fishing and improve fishing opportunities for the disabled.

The survey data matches well with the 2007 NSRE survey which found that 30.9% of NC residents went freshwater fishing in the last year. The NSRE also found that 26.5% of NC residents enjoyed viewing or photographing fish. Saltwater fishing is somewhat less popular with only 17% of NC residents participating, according to the 2007 NSRE.

### **Museum and Education Exhibits**

Interpretation and education at state parks is very popular. Half of those surveyed (50.7%) said they would use a museum and educational exhibit during their visit to a state park. A museum or educational exhibit was ranked by those surveyed to be their fifth highest priority in our state parks. The need for interpretation and education of the state's natural resources was an overarching theme in the comments received from the survey. Many people felt that all park visitors need more educational

opportunities to appreciate and understand the parks they visit, particularly the need to educate children to instill a sense of wonder and awe for the natural environment was also seen as a high priority.

### **Observation decks**

The survey found that observation decks were the fifth most popular facility in state parks, with 61% of participants indicating they would use these platforms to observe nature. According to the 2007 NSRE, viewing and photographing natural scenery was found to be the fifth most popular outdoor activity in North Carolina. 57% of North Carolinians participated in this activity during the previous year.

## **OPERATIONS AND OVERALL PARK THEMES**

### **Land Acquisition for Both Recreational Use and Conservation**

Interest in land acquisition was a primary focus of most survey respondents. 95.2% of all respondents either strongly agreed or agreed with the statement that *“NC Parks should add new parks to provide additional recreational opportunities.”* Hundreds of written survey comments were received to elaborate on this sentiment.

Many respondents of the survey commented that it is imperative that the division of Parks and Recreation acquire significant lands now while they are still available – before they are lost forever to development. Many people supported new land acquisition as a means of controlling the state’s sprawling urban development. An overwhelming concern from those seeking a greater increase in the amount of land acquired by the division is that that state should buy the land now – and worry about developing the appropriate facilities later.

However, a significant group of respondents didn’t agree. Some mentioned that it would be unwise to buy more park land and assume that financial responsibility while other existing parks are understaffed, in need of maintenance, and/or where current capital improvement projects remain unfunded. 57.5% of survey respondents either strongly agreed or agreed with the statement: *“Completing land acquisition and construction plans at existing parks should take priority over adding new parks, recreation areas, or natural areas.”*

### **Where to Locate New Parks**

As expected, there was a high level of disagreement regarding where new parks should be located. Although 89.9% either strongly agreed or agreed with the following statement: *“It is important to locate new parks based on the need to protect natural and recreational resources regardless of their proximity to centers of population”*; however, many did not. 61.4% either strongly agreed or agreed with the statement that: *“It is important to locate new parks equitably across the state based on geography and population.”*

### **Natural Resource Protection**



Ensuring that parks remain natural and protecting the state's natural resources was also major theme to emerge from the survey. 93.7% of all respondents either strongly agreed or agreed with the statement that: *"It is important to protect natural and scenic resources by acquiring land even if these areas may not be accessible to the public until planning, design and funding are in place to be developed as park units."* Although outdoor recreation is extremely important to all park users, the desire to use the Division of Parks and Recreation to act as a means of conserving land first and then planning for recreation later was evident. 89.8% of those surveyed either strongly agree or agree with the following statement: *"It is important to protect North Carolina's unique natural resources, even if it means limiting public access to certain areas."*

Comments received from the survey covered a wide spectrum of the balancing act the division performs in protecting natural resources while providing outdoor recreation opportunities. Some commented that the protection of natural resources is too important to risk in the name of recreation, while others argued that on public lands, responsible recreation can and should dovetail with the preservation of natural resources. Both perspectives have valid arguments regarding the management of parks and the division's balancing of those needs remains a primary focus of its mission.

### **Interpretation and Education**

The majority of survey participants supported the enhancement of environmental education both for park visitors and environmental education programs for children. 82.6% of survey respondents either strongly agreed or agreed that that NC Parks should focus on providing more environmental education to visitors at parks. 80.5% supported improving environmental education for children in the public schools curriculum and 78.6% of those surveyed wished to have more programs in parks for children and families.

Comments from survey respondents repeatedly drove home the importance of educating visitors at parks to understand and respect the natural resources. Several participants wanted to see more hands-on program and demonstration projects in parks such as recycling and storm-water management best management practices. Others noted the importance of adding new education and interpretation staff to provide this increased level of park visitor education.

### **Quality of Information for the Public**

A majority of those surveyed were satisfied with NC Park's website content. 77.1% either strongly agreed or agreed that the website was sufficient for their needs. An even greater percentage of respondents were pleased with the maps and brochures available to them at parks, with 82.7% either strongly agreeing or agreeing that these documents met their needs.

However, a significant percentage of people were not happy with the website and maps. One in five respondents (20.4%) were not pleased with the website format and content. 16.0% desired better maps and brochures. Several people gave written comments to express their concerns with the information NC Parks makes available to the public. A primary complaint was that park maps don't provide enough information about the park and what it has to offer. Many people complained that maps of trails were not detailed enough. Others requested that maps be revised to include the scale and topography.

Some respondents desired better signage: on trails; for paddling access points; and to direct motorists to a park from the highway. Many respondents felt that NC Parks doesn't do enough to market its parks and make information available about outdoor recreation and education opportunities.

### **Improving Maintenance and Cleanliness**

Many survey participants felt that improving maintenance in parks was important. 77.8% of those surveyed either strongly agreed or agreed that improving park maintenance is necessary. One in five surveyed (21.4%) felt that improving park maintenance wasn't an important issue.

### **Improving Accessibility for the Disabled**

Survey respondents had mixed opinions regarding the level of accessibility for the disabled in state parks. 55.7% either strongly agreed or agreed that accessibility in park needs improvement, while 44.3% either strongly disagreed or disagreed. Some of the survey comments received regarding improved accessibility included more accessible trails and fishing opportunities for persons with disabilities.

### **Access to and within State Parks**

Many survey participants gave written comments to complain about limitation on use in state parks. The chief complain was the operating hours of the park – while many desired longer hours of operation (for early morning exercise, watching a sunset, or fishing at night), others disagreed with the concept of closing a park for the night.

### **Amount of Development in Parks**

Although the vast majority of participants expressed a desire for more parks and recreational opportunities within parks, many respondents wanted to ensure that parks were not over-developed and remained in a mostly natural condition. Finding the appropriate balance of recreational use and natural resource protection again emerged as an important theme in the survey.

### **Fees**

Survey respondents' reaction to park fees was mixed. Exactly the same percentage of respondents either strongly agreed or agreed (78.5%) that they would be willing to pay higher fees for improved and expanded park services and programs as the percentage of people who felt that fees need to be kept at a minimum to serve the greatest number of people possible. This can be interpreted as: while parks provide a very valuable recreational resource to its users, a tax-payer funded amenity should strive to keep any additional users fees as low as possible to not discriminate against those who cannot pay. Written comments from the survey mirrored this sentiment.

## **COMPARISON OF RESPONSES: GENERAL PUBLIC VS. PAC MEMBERS**

The survey was designed to record results of the members of the North Carolina State Park Advisory Committees (PACs) to compare their responses to those of the general public. Of the 251 PAC members

in the state parks system at the time the survey was conducted, 67 PAC members (27%) completed the survey. Of the 3,927 completed surveys received, only 2% were from PAC members.

In terms of facility preferences, PAC members had very similar responses as the general public for such as facilities as: back-country primitive campsite; tent/trailer campsite without hook ups; group campsites; simple cabin (enclosed living space); playground; open play area; equestrian trail; multi-use trail; swimming area; and beaches.

However, PAC members were less likely to: use a tent/trailer site with hook ups (23.9% PAC members vs. 34.9% public); use a RV/trailer site with hook up (14.9% PAC members vs. 22.5% public); use a mountain bike trail (23.9% PAC members vs. 40.4% public); and use a rock climb area (26.9% PAC members vs. 31.1% public).

Although, PAC members were more likely to: use an improved cabin with kitchen, heat, and restroom (52.2% PAC members vs. 44.5% public); and use a fishing pier (37.3% PAC members vs. 29.8% public).

In some instances, PAC member preferences varied greatly from that of the general public. PAC members are much more likely to: use hiking trail (92.5% PAC members vs. 80.3% public); use a picnic shelter (73.1% PAC members vs. 53.4% public); use a paddle trail (70.1% PAC members vs. 56.0% public); use a boat ramp/dock (46.3% PAC members vs. 29.8% public); use a marina (31.3% PAC members vs. 16.9% public); use a museum/educational exhibit (79.1% PAC members vs. 50.6% public); and to use an observation deck (85.1% PAC members vs. 60.5% public).

Despite the variations in facility use between PAC members and the general public, there was a high level of agreement regarding the priority of new facilities in state parks. Both cohorts felt strongly about the need for new hiking trails and museum and educational exhibits. 31.3% of the PAC members surveyed chose hiking trails as their first priority. Hiking trails were the second, third, and fourth highest priorities for the general public. Both PAC members and the general public chose museum and educational exhibits as their fifth highest facility priority.

The outlier in the facility priorities for the two groups is the desire for mountain biking trails. Given the deviation of the survey from the 2007 NSRE, it is evident that the survey had a much higher representation of mountain bikers than that of the general population. This discrepancy is evident when comparing the priority choices for facilities among PAC members and the general public. The general public's priority for mountain biking facilities is far out of line with that of PAC members, despite nearly one in four PAC members (23.9%) expressing interest in mountain biking.

It is interesting to note that PAC members and the general public had high level of agreement to the 17 policy statements in question three of the survey. Positions on the need for new parks, land acquisitions, protection of natural resources, park development priorities, new park locations, fees, public information, and park maintenance were all in close agreement.

However, PAC members had a higher level of support for environmental education compared to the general public. 91.1% of PAC members surveyed strongly agreed or agreed for the increased need for environmental education for park visitors. Whereas the majority of the general public did support this idea, only 73.1% strongly agreed or agreed. A similar distribution between PAC members and the

general public was observed on the topic of the importance of environmental education for children and families.

Compared to the general public, PAC members also saw the need for improvement in state parks for persons with disabilities to be a higher priority. 67.2% of surveyed PAC members either strongly agreed or agreed with the statement that access for the disabled in state parks needs improvement, whereas only 54.9% of the general public strongly agreed or agreed.

In terms of priorities for the 17 policy statements, the PAC members and general public were in nearly unanimous agreement. The first second and third priority statements for the two cohorts were the same. Protecting natural resources through land acquisition was of the utmost importance.

The only disagreement on the priority statements between PAC members and the general public was the importance of increasing environmental education for children, which was the PAC members' fourth priority. All five of the general public's priorities related to natural resource protection.



APPENDIX D  
RESOURCE THEME DEFINITIONS

# RESOURCE THEME DEFINITIONS

## ARCHEOLOGICAL RESOURCES

The resource themes used in this study are general statements of the various kinds of past human activity that are represented by sites or features within the State Parks System. These sites and features can be organized into three thematic categories—prehistoric archeological resources, historic archeological resources, and standing structures and other aboveground features.

### Prehistoric Archeological Themes

For purposes of this planning document, the term prehistory refers to the period of time beginning with the initial entry of the Native Americans into what is now North Carolina (sometime prior to ca. 10,000 years ago) until ca. 1670 A.D., by which time European settlement of the North Carolina coast was well underway. A prehistoric archeological site is therefore defined as any location of prehistoric human activity. As such, a site may be identified by one or more artifacts or features made, modified, or used by prehistoric people. These sites can be divided into a series of generalized site types that reflect differing forms of human activity which can be identified by specific artifact patterns and features. These site types or themes (for consistency with the State Parks planning process) are defined as follows:

#### Village

Sites that possess the remains of domestic, ceremonial, subsistence and economic activities, and shelters indicative of year round habitation.

#### Campsite/Activity Area

Sites that consist of the remains of domestic, subsistence and economic activities, and shelters indicative of short-term habitation, or of behavior associated with specific domestic, subsistence, or economic activities. Examples include, but are not limited to, temporary habitation sites, hunting sites, butchery sites, and wild plant gathering sites such as those associated with harvesting nut resources.

#### Shell Midden

Sites that consist of the remains of shellfish gathering mixed with the remains of other domestic, subsistence and economic activities, with the mussel shell being the primary component of the remains.

#### Burial/Cemetery

Sites that consist of one or more human burials, and the material remains placed with the individual interments. Usually, but not always, prehistoric burials/cemeteries exist as part of some other archeological site, especially villages and campsites.

#### Quarry/Soapstone

A specialized economic site that shows evidence of activity directed toward the extraction of soapstone from the ground for trade or for later fashioning into artifacts such as bowls and ornaments. This site could show evidence of the actual sources of the soapstone mined, and/or the artifacts used to extract the soapstone. The habitation area used by the soapstone miners would be classified as a

Campsite/Activity Area, or possibly a Village.

#### Quarry/Other

A specialized economic site that shows evidence of activity directed toward the extraction of some stone (excluding soapstone), such as quartz, rhyolite, or slate, from the ground for trade or for later fashioning into artifacts such as projectile points, scrapers, and blades. This site could consist of the actual source of the stone mined, the artifacts used to extract the stone, and examples of the stone actually mined. The habitation area used by the stone miners would be classified as a Campsite/Activity Area or possibly a Village.

#### Shelter/Cave

A site that consists of a natural rock shelter, rock overhang or cave showing evidence of having been used as a temporary or permanent habitation area. The remains of domestic, economic and subsistence activities would be present.

#### Rock Art

A site that consists of drawings, sketches, or engravings executed by prehistoric peoples on stone (such as rock outcrops and the walls of rock shelters and caves).

#### Trail/Path

A site used by prehistoric peoples as a route of land travel. A good example is the Occaneechi Trail that can be tentatively identified with certain existing roads in the Eno River State Park. The Occaneechi Trail connected the prehistoric and historic Indian groups of the North Carolina Piedmont with the Indians of the Chesapeake, the North Carolina Coast, and the South Carolina Piedmont. It was also a trail used by European traders during early historic times, approximately A.D. 1670 to 1750, to conduct trade with the Indians of the interior of the Southeastern United States.

#### Underwater

A preserved underwater site that shows evidence of any prehistoric human behavior associated with habitation, subsistence and/or economic activities. Examples include, but are not limited to, the submerged prehistoric canoes and other artifacts including pottery recovered from Lake Phelps.

#### Other

Any site that shows evidence of human activity that cannot be associated with any of the other prehistoric themes.

### **Historic Archeological and Standing Structure Themes**

For purposes of this planning document the term “historic” refers to the period of time beginning with the European settlement of what is now North Carolina (about the mid-seventeenth century). A historic archeological site is defined as any location of past human activity associated with historic Indians, Afro-Americans, and Euro-Americans and are generally identified by the material remains (artifacts and features) associated with them. These sites can be divided into a series of generalized site types that reflect differing forms of human activity that can be identified by specific artifact patterns and features. The theme definitions used for Standing Structures (which are the result of a specific type of human



activity) are the same as those used for historic archeological resources. The themes in this case reflect different building types. These site types and building types or themes (for consistency with the State Parks planning process) are defined below:

#### Recreation

Structures and/or sites related to the early development of the State parks System or to earlier private or local parks that preceded the state system, including but not limited to camp structures, sleeping cabins, picnic shelters, lodge halls, bathhouses, and related facilities. Also included would be early Euro-American and Afro-American structures or sites used for leisure or amusement activities such as race tracks, baseball fields, mineral springs, fishing cabins, and any landscaping associated with these features.

#### Public Works

Facilities or the archeological remains of facilities constructed by local, state, and federal governments as part of public works projects, particularly the CCC, including but not limited to dams and other engineering facilities and including support facilities such as barracks, mess halls, bath houses, etc. not subsequently used for public recreation, and any associated landscape features.

#### Public/Civic/Religious

Standing structures and/or sites built for community purposes, including but not limited to churches, lodge/fraternal halls, schools, post offices, and other government facilities, and any associated landscape features.

#### Commercial

Structures and/or sites related to the exchange of goods including but not limited to store buildings, wharfs, and any associated landscape features.

#### Urban/Domestic

Dwelling houses and/or the archeological remains of dwelling houses in a town or village setting, including all support structures such as sheds, garages, garden or animal facilities and any associated landscape features such as fences, plantings, walls, arbors, etc.

#### Rural/Domestic

Dwelling structures and sites associated primarily with the agricultural economy, including farm and plantation houses and all their support facilities, including but not limited to barns, granaries, privies, smokehouses, cribs, sheds, spring houses, and similar structures. Also included would be irrigation canals and ditches, trappers cabins and their support structures and any associated landscape features such as fences, plantings, walls, etc.

#### Cemetery

Burial sites with associated above-ground features, including stones and markers, fences and walls, and associated landscaping.

#### Industrial

Structures or sites associated with the extraction of resources or the manufacture of materials or goods, including but not limited to mines, furnaces, distilleries, and factories. (Excepting mill sites—see below.)

### Mills

Structures and/or sites associated with the grinding of corn and grains or the cutting of lumber including but not limited to mill buildings, dams, sluices, storage buildings, related support structures and any associated landscape features.

### Transportation

Roadbeds, bridges, landing docks, canals, lighthouses, and other features or sites related to transportation.

### Military

Forts and fortifications, earthworks, battlefields, barracks, magazines, commissaries, and other features and sites related to defense of territory.

### Underwater

Lost or abandoned vessels or structural part of these vessels and structures built in the water such as docks, wharfs, dams, bridges, mill sites, lighthouses, and fish traps. Also included are inundated land sites and cultural material that is intentionally or accidentally deposited in the water particularly in areas such as river crossings, landing sites and city or town water fronts.

### Other

Any structure or site that shows evidence of human activity that cannot be associated with any of the other historic themes.

## **BIOLOGICAL RESOURCES**

Over 116 natural community types have been identified and described in North Carolina (Schafale and Weakley, 1990). These have been grouped into 32 biological themes based on similarities in environment and vegetation. Each of the themes is described more fully in the Natural Heritage Program Biennial Protection Plan (Division of Parks and Recreation, 1993).

### Spruce-Fir Forests

Forests dominated by red spruce and Fraser fir occur on the high mountain tops in western North Carolina, generally over 5500 feet in elevation. They provide habitat for large numbers of both endemic Southern Appalachian and disjunct northern species of plants and animals. This theme is represented in the parks system at Mount Mitchell. The park contains good examples of the Fraser Fir Forest natural community, but contains little of the Red Spruce-Fraser Fir Forest found at slightly lower elevations. Like spruce-fir forests elsewhere, the forests in the park have been drastically changed by the balsam woolly adelgid, an introduced insect pest.

### Grass and Heath Balds

Balds are treeless shrub or herb-dominated communities of the high mountains. Grassy balds are open meadows with a diverse mixture of species. Heath balds are dense thickets of tall shrubs, mostly rhododendron, mountain laurel, and other members of the heath family. The state parks system includes only small amounts of heath bald at Mount Mitchell, and no examples of grassy bald in any of the parks.

### Northern Hardwood Forests

Northern hardwood forests are found on high mountain slopes with a cool climate and high levels of rainfall. They are dominated by combinations of moist-site hardwoods, such as yellow birch, beech, buckeye, and sugar maple. A good example of northern hardwood forest is found at Mount Jefferson, but the parks system does not include representation of the range of diversity in this broad theme.

### Mountain Cove Forests

Cove forests are relatively stable, uneven-aged climax forests, with trees up to several centuries old, occurring on sheltered, moist, low to moderate elevation sites. They have a dense canopy of moisture loving trees and a high diversity in all vegetation layers. The state parks system includes small examples of cove forests at South Mountains and Stone Mountain, but includes no examples of the more typical mountain version and no examples of Canada Hemlock Forest.

### Piedmont and Coastal Plain Mesic Forests

Mesic forests occur on sites that are moist but not wet. These sites are among the most favorable environments in these regions for plant growth. They tend to support dense forests of beech, tulip poplar, red oak, and other moisture-loving trees. In the Piedmont and Coastal Plain, mesic sites often contain species that are more common in the mountainous parts of the state or farther north. Good examples of acidic Mesic forests are found at Merchants Millpond, Eno River, William B. Umstead, Cliffs of the Neuse, and other parks. A good, though small, example of basic Mesic forest occurs at Raven Rock.

### Piedmont and Mountain Dry Coniferous Woodlands

The vast majority of relatively undisturbed land in the Piedmont and Mountain regions is dominated by hardwood forests. While successional pine forests are very common, naturally occurring pine and Carolina hemlock forests are uncommon. They occur at mid to low elevations in specialized sites that are drier than average. They are found primarily in the mountains and in a few mountain-like sites in the Piedmont. South Mountains and Stone Mountain contain good examples of dry coniferous woodlands, but higher elevation examples are not represented in the parks system.

### Montane Oak Forests

Montane oak forests, which once had chestnut as a codominant, occupy much of the landscape of the Mountain region, covering the dry to intermediate slopes and ridgetops over a broad elevational range. Some montane oak forests are found at Mount Jefferson, and good examples of the foothills version occur at South Mountains and Stone Mountain, but there is inadequate representation of several montane oak community types in the parks system. This theme is scarce in the Piedmont, but excellent examples occur at Hanging Rock and Pilot Mountain.

### Piedmont and Coastal Plain Oak Forests

Oak forests were once the most common natural community type in the Piedmont, occurring over most of the uplands. In the Coastal Plain they were much more limited, occurring primarily in dissected areas near streams. Although still widespread, Piedmont and Coastal Plain oak forests have been substantially reduced from presettlement times. The parks system contains excellent representation of acidic types of this theme at several parks, but has little representation of basic types.

### High Elevation Rock Outcrops

These communities occur on ridgetops, peaks, and upper slopes where soils are thin and discontinuous, vegetation is very patchy, and rock dominates the surface. Even in the most rugged high mountains they represent only a small fraction of the landscape. Mount Mitchell and Mount Jefferson contain good examples of this theme; however, the parks system does not include any examples of the High Elevation Granitic Dome community type.

#### Low Elevation Cliffs and Rock Outcrops

This broad theme contains a wide variety of community types that are too steep or rocky to support a closed tree canopy. Vegetation is generally very patchy, reflecting wide variability in soil depth, rock chemistry, and available moisture. The parks system contains excellent representation of several rock outcrop community types, although representation is not as good for the calcareous and mafic types.

#### Coastal Plain Marl Outcrop

This theme is very rare in North Carolina. Coastal Plain marl outcrops generally occur along stream bluffs or in ravines. Some are true marl while others are coquina or other kinds of limestone. Trees include calcium-loving species such as black walnut, southern sugar maple, and pawpaw, as well as more widespread moisture-loving species such as beech and tulip poplar. This theme is not represented in the parks system. An example of this theme occurs along the north shore of Lake Waccamaw, but this area is not included within the park boundaries.

#### Granitic Flatrocks

Granitic flatrock communities occur on flat to gently sloping exfoliated outcrops of granitic rocks in the Piedmont. The rock outcrop is generally flush with the surrounding soil and has only minor irregularities. Vegetation is sparse and patchy, and includes several species found in no other communities. Mitchells Mill contains an excellent example of this theme. Several small examples occur at Raven Rock.

#### Mafic Glades and Barrens

The communities in this theme are non-forested communities that occur on relatively flat outcrops of unusual, high pH rock types. All have vegetation kept open by the physical structure and chemistry of the rock. These communities have high concentrations of rare plant species. Only a handful of examples of this theme are known in North Carolina, and none of these are currently included within the state parks system.

#### Maritime Grasslands

This theme includes the dunes, sandy flats, and dune swales along the coast. These communities are unable to support trees because of heavy salt spray or overwash by salt water during storms. Excellent examples of this theme occur at Baldhead Island and Hammocks Beach.

#### Maritime Upland Forests

This theme includes well-developed forests with canopies of live oak, sand laurel oak, and loblolly pine. It also includes the distinctive scrubby woody growth of stabilized sand dunes and sand flats. Most maritime forests are found on the barrier islands, but a few areas on the mainland share the characteristic species. The state parks system includes several small, but good examples of maritime forest. Extensive examples are lacking, as are several of the rarer community types.

#### Dry Longleaf Pine Communities

Longleaf pine communities are scattered in most of the Coastal Plain and extend into the Piedmont in the south. They were once the most abundant vegetation type in the Coastal Plain, occupying vast acreages and exhibiting considerable diversity based on moisture, soil, and location. Good examples of this theme exist at Carolina Beach, Jones Lake, Singletary Lake, Baytree Lake, and Weymouth Woods. Several important variants are not represented, particularly in the Sandhills.

#### Blackwater Coastal Plain Floodplains

This theme includes the vegetated communities that occur on the floodplains of blackwater rivers. Blackwater rivers originate in the Coastal Plain, rather than in the Piedmont or Mountains. They carry little mineral sediment, and the water is generally very acidic and low in nutrients. The forests contain flood-tolerant trees and shrubs, are typically low in diversity, and can cover large areas. The state parks system contains good examples of this theme at Merchants Millpond, Lake Waccamaw, and a few other small areas. Acquisitions at Lumber River will add examples of this theme to the system.

#### Brownwater Coastal Plain Floodplains

Brownwater rivers originate in the Piedmont or Mountains and flow into the Coastal Plain. In contrast to blackwater rivers, they carry heavy loads of mineral sediment, particularly clay and silt. The water is generally near neutral in pH and high in nutrients. Sediment deposition in the floodplain often results in topographic relief such as levees, bars, and sloughs. Representation of this theme in the parks system is minimal, with a small example at Cliffs of the Neuse.

#### Piedmont and Mountain Floodplains

Floodplains in the Piedmont and mountains tend to be narrow, infrequently inundated, and generally lacking in depositional landforms. The forests contain mixtures of bottomland and moisture-loving species. Small depressions in the floodplain sometimes form pools that provide important amphibian breeding habitat. The state parks system contains good examples of some of the community types in this theme, but the Montane Alluvial Forest community type has little representation and the Piedmont/Mountain Swamp Forest is essentially unrepresented.

#### Riverine Aquatic Communities

This theme includes all perennial, flowing water ecosystems—all rivers, creeks and streams. These aquatic systems are of great ecological importance. Riverine communities are highly diverse, ranging from mountain torrents to placid and meandering Coastal Plain rivers. Animals, rather than plants, tend to be the most conspicuous members of the communities. Many state parks are located adjacent to rivers, and many contain streams and creeks. However, few of the aquatic communities themselves are well-protected. The parks system includes only four State Rivers, and entire watersheds are included in only a few parks.

#### Mountain Bogs and Fens

Montane bogs are among the rarest natural communities in the Southern Appalachians and in North Carolina. Bogs form in poorly drained depressions or on gentle slopes. They vary from being permanently wet to intermittently dry and are generally fed by seepage. Vegetation is generally a mosaic of shrub thickets and herb dominated areas. The state parks system contains no examples of mountain bogs.

#### Upland Seepages and Spray Cliffs

The communities in this theme are small wetlands that occur on sloping uplands in the Piedmont and

Mountain regions. The soils are generally saturated permanently or for long periods. Spray cliffs are kept wet by waterfalls; the other community types in this theme are fed by seepage. Spray cliffs are represented in the parks system at Hanging Rock, South Mountains, and Stone Mountain. There are few examples of seeps in the state parks system.

#### Piedmont Upland Pools and Depressions

These are shallow depressions which hold water in the wetter parts of the year. They generally dry up by the end of summer, but are flooded long enough to contain wetland vegetation which contrasts with the surrounding uplands. Most occur in the Piedmont. Morrow Mountain contains one small example of this theme, but representation in the parks system is otherwise absent.

#### Coastal Plain Nonalluvial Mineral Wetlands

Nonalluvial mineral wetlands occur on flat, poorly drained areas of the outer Coastal Plain and occasionally in shallow depressions such as Carolina bays. The soils in these sites are saturated in the wetter seasons and may have shallow standing water. Vegetation is dominated by cypress, black gum, or other wetland hardwoods. In the state parks system, this theme is represented only at Dismal Swamp.

#### Peatland Pocosins

Peatlands occur on nearly flat, poorly drained areas of the outer Coastal Plain and in large shallow depressions such as Carolina bays. Peat deposits develop where the soil is saturated for long enough periods that organic matter cannot completely decompose. The peat acts as a sponge, raising water levels in the soil, which is extremely infertile and acidic. Vegetation includes stunted pond pines and low shrubs, often with areas of sphagnum and pitcher plants. Pocosins are represented in the parks system at Dismal Swamp, Pettigrew, and several of the Carolina bay parks.

#### Streamhead Pocosins

These communities have vegetation similar to peatland pocosins, but the physical setting is very different. They occur in ravines in dissected, sandy Coastal Plain terrain. The soils are mucky, very acidic and infertile. The streamhead pocosin theme is represented at Weymouth Woods. Better representation is needed in the Sandhills, where most examples of this theme exist.

#### Wet Pine Savannas

The communities in this theme are Coastal Plain mineral soils wetlands that in presettlement times were frequently burned. With frequent fire, they have an open canopy of longleaf or pond pine over a grassy herb layer. They often contain a high diversity of herbaceous plants, including showy wildflowers and insectivorous plants. Shrubs are short and sparse with frequent fire, but become dense if fire is suppressed more than a couple of years. Examples of this theme occur at Carolina Beach and Jones Lake, but the diversity of wet pine savanna communities is not well represented.

#### Coastal Plain Depression Communities

These occur in various kinds of small basins in Coastal Plain uplands. The basins, which may be limesink depressions, Carolina bays, or swales between recent or older sand dunes, hold standing water for substantial parts of the year. Vegetation is often strongly zoned and varies widely. Carolina Beach contains excellent examples of several limesink types. Theodore Roosevelt and Bushy Lake also contain small examples.

### Natural Lake Communities

Natural lakes occur only in the Tidewater and Coastal Plain part of North Carolina. Some lake basins are Carolina bays, while others are depressions in peatlands that may have been created by deep peat burns or other causes. Most of the lakes in North Carolina are very acidic. Lake Phelps, Lake Waccamaw, Jones Lake, Singletary Lake, and the other state lakes represent the diversity of this theme.

### Maritime Wetland Forests

Maritime wetland forests occur in wet sites on barrier islands and near the sounds on the mainland. They are generally sheltered from the most extreme salt spray and from seawater overwash. The soils are saturated for much of the year. This rare theme includes forests and shrub communities. Examples exist at Fort Macon and Theodore Roosevelt, but the acreages are small.

### Freshwater Tidal Wetlands

Freshwater tidal wetlands occur in sites where flooding occurs in response to lunar or wind tides, but the water has less than 0.5 parts per thousand salt content. They are found on rivers near the coast and along the large sounds. Good to excellent examples of this theme are found at Goose Creek and Chowan Swamp.

### Estuarine Communities

Estuarine communities are affected by tidal waters in and along the sounds and drowned river mouths. Salt marshes, brackish marshes, salt flats, and salt shrubs may occur. This theme is well represented in the parks system at Fort Macon, Hammocks Beach, Fort Fisher and Baldhead Island.

## **GEOLOGICAL RESOURCES**

### Barrier Islands and Shoreline

Geomorphic features created by wind and waves at the coast during Holocene times, both on barrier islands and on sections of the mainland coast where barriers are absent. They include beach, foredunes, active and stabilized rear dunes, overwash deposits, interdune ponds and swamps, inlets, sand spits, capes, relict inlets, active flood and ebb tidal deltas.

### Estuaries

Geomorphic features associated with tidally influenced areas in lagoons behind barrier islands and in drowned river mouths. They include regularly and irregularly flooded tidal marshes, estuarine swamps, tidal channels, open water with sand and mud bottom, shell beds, relict flood tidal deltas, and estuarine beaches.

### Continental Shelf

Geomorphic features of offshore areas. They include soft bottom areas and erosional marl outcrops characterized by low scarps.

### Relict Coastal Features

Geomorphic features created by coastal processes before the Holocene, at higher stands of sea level than at present. They include Coastal Plain scarps and terraces, relict beach ridges, and dune systems.

### Carolina Bays

Oriented elliptical depressions. They include water-filled, peat-filled, sandy, and clay-based bay interiors, sand rims, and associated aeolian sand deposits.

#### Fluvial Depositional Features

Geomorphic features produced by alluvial processes of streams and rivers on floodplains and in river channels, primarily in areas of relatively non-resistant rock. They include mud, sand, and gravel bars, natural levees, point bars, sloughs, ridge and swale systems, oxbows, relict terraces with ridge and swale systems, sloughs, etc., terrace slopes, and coastal plain blackwater stream swamps.

#### Peatlands and Interstream Wetlands

Areas saturated by non-flowing water for large parts of the year, because of blocked drainage or flat topography without drainage. They include peat domes, other peatlands, upland swamps, and peat deposits in Carolina bays.

#### Natural Lakes and Ponds

Natural bodies of fresh water in depressions of various origin. They include lakes in peatlands and Carolina bays and ponds in naturally blocked drainage systems and sinkholes or dolines, with associated shallow nearshore areas, beaches, and erosional shorelines.

#### Caves, Sinks, and Springs

Features produced by solution of rock and other effects of ground water. They include solution caves, speleothems, sinkholes, dolines, natural bridges, and other karst features, and flowing and seeping springs produced by ground water flow in solution cavities, fractured bedrock, saprolite, and sand.

#### Dissected Uplands

Upland areas with well-developed drainage, showing the effects of the common surface geomorphic processes operating on most of the state's landscape. They include upland ridges, ravines, and slopes along streams, underlain by bedrock, saprolite, or colluvium.

#### Inselbergs (Monadnocks)

Isolated erosional remnants. They include isolated hills and mountains of unusually resistant rocks and outliers of the Blue Ridge escarpment.

#### Cliffs

Steep to vertical or overhanging slopes of exposed rock. They include cliffs of resistant rock on high peaks and ridges, and cliffs produced by streams and rivers.

#### Exfoliation Features

Geomorphic features produced by exfoliation or spalling in hard, generally granite-like rocks. They include flatrocks, dome-shaped mountains and rock faces, and weathering pits which are most commonly formed on exfoliation surfaces.

#### Gorges, Rapids, and Waterfalls

Features produced by stream erosion in high to moderate relief terrain or resistant rock. They include steep-walled gorges, waterfalls, waterfall pools, rapids over bedrock, rapids over boulder deposits, and potholes.



### Mass Wasting Features

Landforms illustrating features produced by mass wasting phenomena. They include debris avalanches, tracks, and deposits, earth flows, slumps, talus slopes, and relict periglacial features such as boulder fields and nivation cirques.

### Faults, Joints, and Related Features

Areas illustrating results of faulting and jointing, either directly or indirectly. They include visible high angle and thrust faults, sheared and cataclastic rocks, large fault-produced features such as windows, fault zones, horsts, and grabens, fissure caves, joint or fault-controlled drainage, and other landforms showing effects of faults or joints.

### Folds and Related Features

Areas illustrating results of folding, either directly or indirectly. They include folds visible in outcrops and series of outcrops, and landforms produced by differential erosion in folded rocks.

### Intrusions

Areas illustrating intrusive igneous bodies. They include batholiths, dikes, sills, ring dikes, and other kinds of plutons, of granitic rocks, syenite, diorite, diabase, gabbro, and ultramafic rocks.

### Volcanic Features

Areas illustrating features produced by extrusive igneous activity. They include lava flows, breccias, tuffs, lahars, pillow lavas, and other features visible in outcrops or expressed in landforms.

### Metamorphic Features

Areas illustrating characteristic minerals, textures, and structures produced by metamorphic processes. They include rocks of different initial composition, metamorphosed to different degrees.

### Sedimentary Features

Areas illustrating sedimentary stratigraphy, rock types, sedimentary structures, and depositional environments. They include sandstone, dolomite, mudstone, graywacke, conglomerate, arkose, lake shale, coastal plain sand and shale, marl, coquina, representative strata of different ages or formations of the Coastal Plain, Triassic Basins, Carolina Slate Belt, and windows in the Blue Ridge.

### Fossils

They include representatives of the range of fossil types, animal and plant, marine and terrestrial, different types of preservation, and different ages.

### Unusual Rock Types

Outcrops of rock types rare in North Carolina or in the region. They include ultramafic rocks, dolomite, marble, limestone, and orbicular diorite and notable occurrences of unusual minerals.

## **GLOSSARY OF GEOLOGIC TERMS**

**Aeolian:** Deposited or reworked by wind.

**Batholith:** A large body of intrusive rock frequently covering many square miles of area and extending to great depth.

**Breccia (volcanic):** A rock consisting of broken rock fragments produced by volcanic eruptions, with rock fragments greater than 32 millimeters in size.

**Dike:** A narrow vertical body of intrusive rock, appearing in outcrop as a narrow line.

**Doline:** A depression on the land surface caused by collapse of surficial sediments into a void created by solution of limestone underground.

**Drowned river mouth:** Lower reach of a river valley, now occupied by tidal estuarine waters. These valleys were formed when sea level was lower and were inundated when sea level rose.

**Graben:** A block of rock lowered relative to adjacent areas by vertical fault movement.

**Holocene:** The most recent period of geologic time, extending from the end of the last ice age (10,000 years ago) to the present.

**Horst:** A block of rock uplifted relative to adjacent areas by vertical fault movement.

**Lahar:** A deposit produced by landslides of volcanic ash on the flank of a volcano.

**Marl:** A sedimentary rock consisting of clay with abundant calcium carbonate material in the form of shells or shell fragments. The term is also frequently used in North Carolina to refer to rocks made up largely of shells.

**Mass wasting:** A series of geomorphic processes involving movement of large masses of earth material by gravity, either slowly or quickly.

**Nivation cirque:** A rounded basin-like landform produced by periglacial processes around permanent snowfields.

**Periglacial:** A series of geomorphic processes resulting from repeated freezing and thawing under cold climate, as occurred during the ice age.

**Pluton:** General term for bodies of intrusive igneous rock.

**Ring dike:** A narrow, ring-shaped body of intrusive rock, as in the syenite ring dike in Cabarrus County.

**Sand spit:** A small point of land or narrow shoal projecting from the shore.

**Saprolite:** A soft, earthy, clay-rich, thoroughly decomposed rock formed in place by weathering.

**Scarp (Coastal Plain):** A relatively steeply sloping area on the Coastal Plain or Continental Shelf, believed to have been formed by coastal processes in the past.

**Sill:** A thin, horizontal body of intrusive rock. Unlike a dike, it may cover a large area in outcrop.

**Slough:** An elongate depression in a floodplain that occurs at a former location of a river channel.

**Spalling:** Breaking in layers parallel to the surface, as sometimes occurs in granite and related rocks.

**Speleothem:** A cave formation, such as a stalactite or stalagmite.

**Tuff:** A volcanic rock consisting of broken rock fragments produced by volcanic eruptions, with fragments generally less than four millimeters in size.

## **GLOSSARY OF SCENIC RESOURCE TERMS**

**Scenic Vistas:** The view from a natural or man-made resource.

**Reservoirs/Lakes:** The view of a body of flat water.

**Waterfalls:** The view of a steep descent of water from a height.

**Rivers:** The view of a large natural stream of water emptying into an ocean, lake, or other body of water, and usually fed along its course by converging tributaries.

**Whitewater Streams:** The view of a cascading body of running water.

**Bays and Estuaries:** The view of either a coastal flat body of water enclosed by land but having an outlet to the ocean or the lower portion of a river where its current is met and influenced by the tides.

**Seashores:** The view of a tract of land adjacent to the ocean.

**Forests:** The view of a dense growth of trees, together with other plants, covering a large area.

**Meadows and Grasslands:** The view of a tract of grass covered land.

**Swamps:** The view of a lowland region saturated with water and primarily vegetated with trees.

**Pocosins:** The view of a shallow swampy depression vegetated chiefly with shrubs.

**Marshes:** The view of a low lying wetland vegetated primarily with grasses.

**Gorges:** The view of a deep, narrow passage with precipitous rocky sides often enclosed between mountains.

**Rock Outcroppings:** The view of an expansive natural stone formation occurring either vertically or horizontally.

**Islands:** The view of a body of land surrounded on all sides by salt or fresh water.

**Caves and Cliffs:** The view of geologic formations of either a hollow beneath the earth's surface or of a vertical rock wall.

**Scenic Highways:** The view from a highway or road of visually diverse and natural or man-made phenomena.